Maintenance Manual

WITTKE



labrie environmental group

equipment for the solid waste industry

WITTKE

STARLIGHT™ & SUPERDUTY™

MAINTENANCE MANUAL



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MAINTENANCE

LIABILITY

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WARNING

Prior to using your new STARLIGHT™ or SUPERDUTY™ Front Loader, it MUST BE COMPLETELY LUBRICATED as shown on the lube decal located near the rear of the body on the passenger side. (Also see Lubrication section in the *Maintenance Checklist*).

Initial lubrication carried out by Labrie Environmental Group is sufficient for production and transport purposes ONLY!

With your safety in mind, we would like to remind you that ONLY QUALIFIED PERSONNEL should service the hydraulic, electrical, and pneumatic systems on your refuse vehicle. In addition, these mechanics should be fully versed in the operation of this unit. Please read the Operator Manual, *prior* to attempting any maintenance of your Wittke Front Loader.

LIFTING COMPONENTS FOR SERVICE

Lifting components of the WITTKE requires special attention to safety.

Before attempting these lifts:

- Empty the body.
- Chock both the front and rear wheels.
- Stand clear of any cranes or similar lifting devices when doing any lifts.
- Do not stand or walk under a load that is suspended unless there are additional safety blocking devices in place.

While Labrie Environmental Group has included the specifications of the lift equipment we use, these specifications are intended as guides only. It is your responsability to ensure your lift equipment meets all safety standards and that only qualified personnel attempt these lifts.

Lifting the Arms and Forks

You may need to lift the arms and forks manually. If you need to do this, remember:

- If the forks cylinders are removed or disconnected, the forks can rotate freely – tie each fork to the arms before lifting the arms and forks assembly.
- Place a lift sling rated to 6400 lbs (2903 kgs) in the middle of the fork pivot tube.
- Complete job, reconnect.
- Keep the sling in place while you repressurize the system.

NOTICE

If both arm cylinders are replaced, move the joystick back and forth in gradually increasing increments. This will distribute the oil evenly within the cylinders and prevent the arms from falling.

Lifting the Front Body

Lifting the front body may be required when you need to complete repairs.

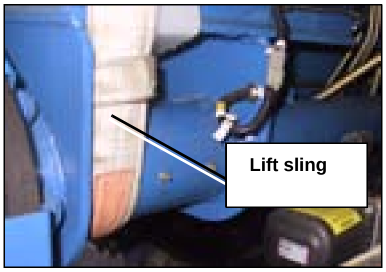
You will need:

- A 18000-lb (8165 kgs) overhead crane
- Two lift slings rated to 6000 lbs (2722 kgs)
- A 12000-lb (5443 kgs) lift beam

To raise the front body:

1. Raise the arms until they are resting on the rubber arm stops on the sides of the body (stowed position) and completely retract the forks against the arms.





2. Remove the both outer grease fittings located on each side of the arm pivot tube. That way, you won't damage the grease fittings or the lifting straps.

3. Securely attach the slings to the lift beam, which was previoulsy installed on the overhead crane.

4. Wrap a lift sling around each end of the arm pivot tube.

5. Unlatch the body latches (one on each side).

NOTICE

MAKE SURE THAT THERE IS ENOUGH CLEARANCE BEFORE LIFTING THE BODY.

6. Raise the front body. Do not raise the front body more than 28 inches high.

7. Install proper safety props before performing maintenance under a lifted body.

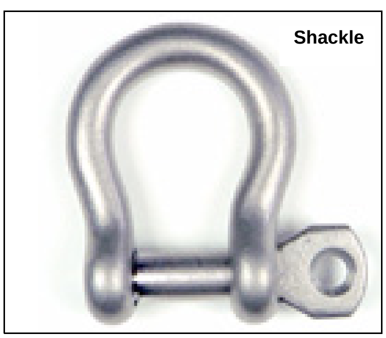
⚠ WARNING

ALWAYS USE PROPER LIFTING DEVICES AND SAFETY PROPS BEFORE PERFORMING ANY MAINTENANCE TASK UNDER A LIFTED BODY. FAILURE TO DO SO MAY RESULT IN SEVERE INJURY OR EVEN DEATH.

LIFTING THE ENTIRE BODY

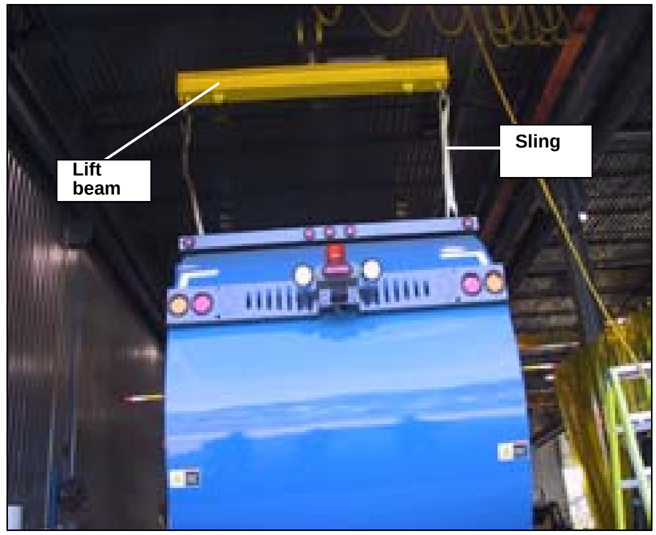
Note: All the ratings provided below are the minimum values.

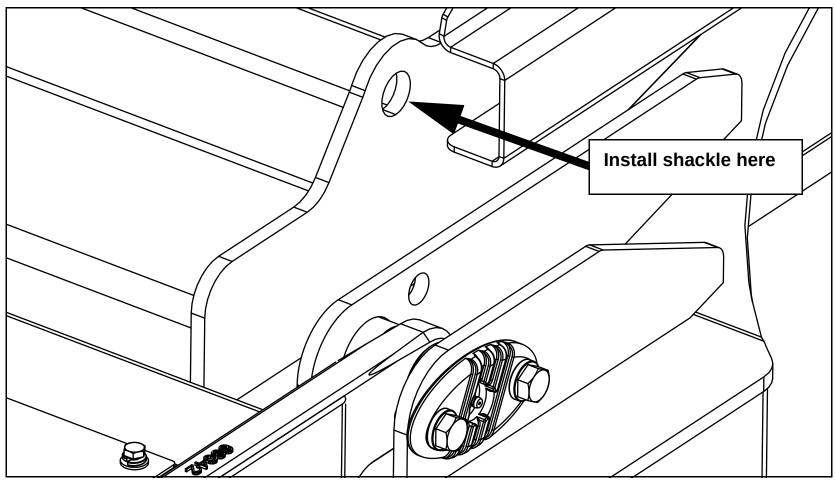
Lifting the WITTKE body requires securing both ends, front and rear, to a lift beam. To do so, you will need two 3000-lb (1361 kgs) rated slings (rear, see picture below), two 3000-lb rated shackles (rear), two 6000-lb (2722 kgs) rated slings (front), one 12000-lb (5443 kgs) lift beam (front), one 6000-lb lift beam (rear) and one 18000-lb (8165 kgs) overhead crane. You can also use a 12000-lb overhead crane at the front of the body and one 6000-lb overhead crane at the rear.



1. Perform step 1 to step 5 of the *Lifting the Front Body* section.

2. Install a 3000-lb shackle on both holes located on top of the body, near tailgate hinges.





3. Fasten shackles securely on each 3000-lb lift sling.
4. Securely attach the slings to the 6000-lb lift beam, which was previoulsy installed on the overhead crane.
5. Lift the body. Make sure to raise both ends of the body at the same time.

Prior to Hydraulic System Maintenance

As with all hydraulic systems, it may be necessary to periodically check and adjust the pressure relief settings. It may be that a major hydraulic component has been changed, the unit is not performing in terms of payload, or the unit has recently been put into service and the system requires adjustment following a run-in period.

⚠ WARNING

Follow a proper lockout/tagout procedure prior to servicing the hydraulics. Death or serious injury can result. Refer to the Operator Manual for more information on safety and lockout/tagout procedure.

Caution:

- The mechanic must have previous hydraulic knowledge as serious injury or death can result from following improper procedures.
- Human skin can be easily penetrated by high pressure oil (2000 psi and above). Failure to take appropriate safety precautions may result in serious injury or death.
- Also, there are extreme overhead dangers if equipment is not properly supported when servicing areas on the hydraulic system.

HYDRAULIC SETTINGS AND MATERIALS

SYSTEM SETTINGS:

MAIN PRESSURE RELIEF VALVE (AT 1500 RPM)	2500 PSI AT 1500 RPM (STARLIGHT™) 2750 PSI AT 1500 RPM (SUPERDUTY™)
ARMS DOWN PORT PRESSURE RELIEF VALVE	1000 PSI
PRESSURE SWITCH IN PACK CIRCUIT	2350 PSI AT 1500 RPM (STARLIGHT™) 2600 PSI AT 1500 RPM (SUPERDUTY™)
THROTTLE ADVANCE	1500 RPM

WELDING INFORMATION

NOTICE

DISCONNECT ALL BATTERIES AND ELECTRONIC MODULES PRIOR TO WELDING ON PACKER BODY.

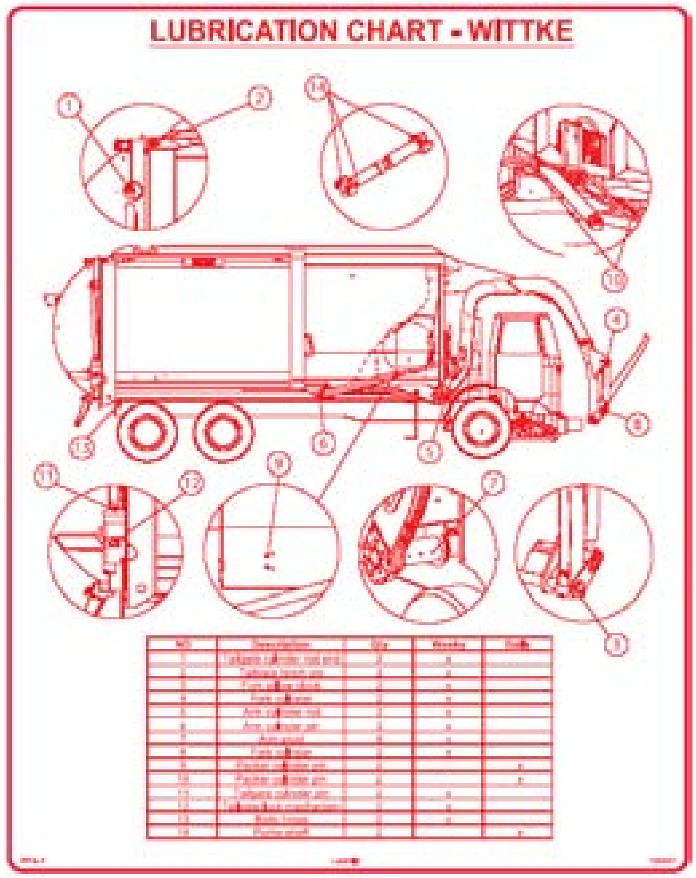
⚠ WARNING

REMOVE PAINT BEFORE WELDING OR HEATING. DO NOT WELD NEAR LINES THAT ARE PRESSURIZED OR CONTAIN FLAMMABLE FLUID.

LUBRICATION

LUBRICATE, LUBRICATE, LUBRICATE! Insufficient lubrication is a major cause of component failure. The Wittke front loaders, like most equipment, have numerous points that require grease.

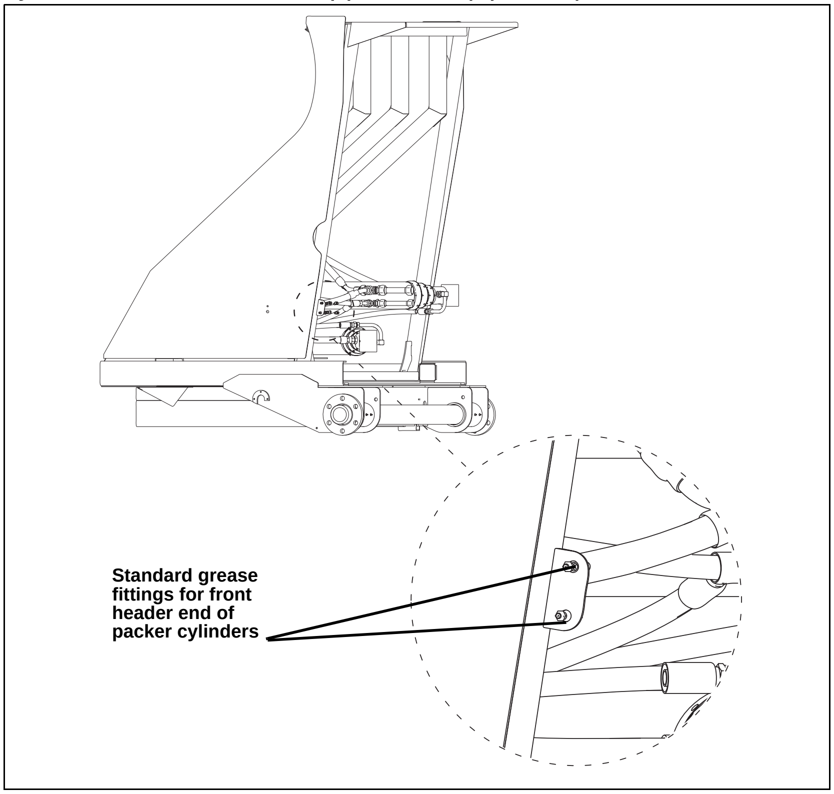
Refer to the lubrication chart located on the side of the truck for a complete list of lube locations and the frequency they should be greased.

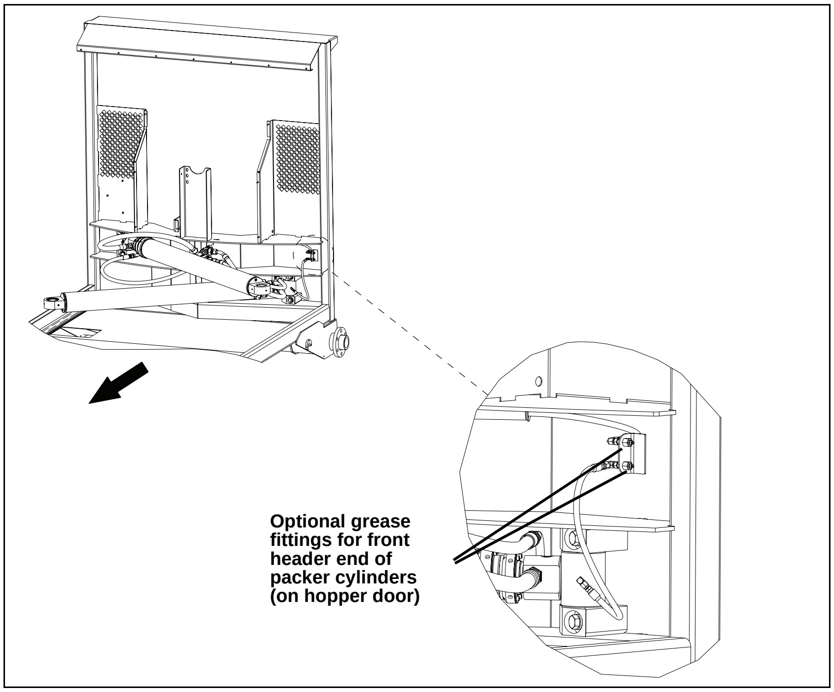


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CENTRALIZED GREASE BLOCK

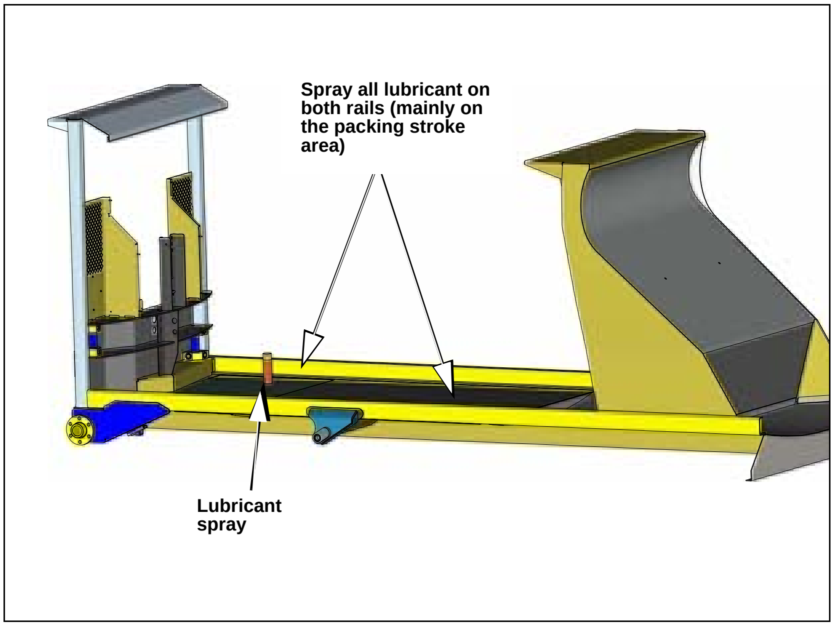
Pins at the packer blade end of the cylinders are remotely greased via two grease fittings on the curb side front of the packer blade. Pins at the front header end of the cylinders should be greased manually (standard) or via a remote greasing system located on the hopper door (optional).





PACKER RAILS LUBRICATION

It is very important to lubricate packer rails, mainly on the packing stroke area, in order to ensure their good condition. A lubricant spray is provided with the truck (at back of the packer) to perform this task.



MAINTENANCE CHECKLIST

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
		1. LUBRICATION						
	1	PACKER CYLINDER PINS (4)				X		
	2	ARM CYLINDER PINS (2) AND PIVOTS (2)				X		
	3	ARM PIVOT TUBE COLLARS (8)				X		
	4	FORK CYLINDER PINS (4)				X		
	5	FORK PIVOT TUBE COLLARS (2)				X		

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
	6	TAILGATE HINGE PINS (2)				X		
	7	TAILGATE CYLINDER PINS (2) AND PIVOTS (2)				X		
	8	TAILGATE LATCH ROLLER PINS (2)				X		
	*9	REAR BODY HINGE PINS (2)				X		
	*10	SIDE ACCESS DOOR HINGES (2)				X		
	*11	CLEANOUT DOOR HINGES (2)				X		
	**12	PUMP DRIVE-LINE U-JOINTS AND SLIP YOKE (3)				X		

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
	*13	TAG AND/OR PUSHER AXLE (QTY MAY VARY)	CONSULT MANUFACTURER					
	*14	INSPECT FOR LEAKS IN PACKER REMOTE GREASE LINES				X		
	15	INSPECT HYDRAULIC OIL LEVEL IN TANK			X			
		*Denotes option or not all units **Unit may be fitted with a driveline which does not require grease						

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
2. CLEANING								
	16	SAFETY LABELS	O					
	17	MIRRORS, LAMPS, WINDOWS, CAMERA	O					
	18	CLEAN DEBRIS AT TAILGATE SEAL		O				
	19	DEBRIS IN FRONT OF PACKER, INSIDE HOPPER (MORE OFTEN IF REQUIRED)			O			
	20	WASH COMPLETE BODY AND CHASSIS (MORE OFTEN IF REQUIRED)				O/M		

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
	21	OTHER:						
		*DENOTES OPTION OR NOT ALL UNITS O = OPERATOR M = MAINTENANCE						

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
3. MECHANICAL INSPECTION (TRUCK AT REST)								
INSPECT FOR DISTORSION, CRACKS, AND/OR UNUSUAL WEAR. ENSURE MOUNTING AND PIN RETAINER BOLTS ARE INTACT AND TIGHT.								
	*22	BODY MOUNTS (2) AND RELATED NUTS, BOLTS AND SPRINGS	O				M	
	*23	BODY HINGE EARS (2), PIN (1) AND RETAINING HARDWARE	O				M	
	*24	SERVICE HOIST CYLINDER EARS (4), PINS (4), AND RETAINING HARDWARE				O	M	

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
	*25	SERVICE HOIST CYLINDER MOUNTING BOLTS ON CHASSIS (QTY. VARIES)	O				M	
	*26	SERVICE HOIST SAFETY PROP AND PROP SOCKETS (INSPECT PRIOR USING)	O				M	
	27	ARM ASSEMBLIES (2)	O			M		
	28	ARM ASSEMBLY MOUNTING BOLTS, LOCK WASHERS AND NUTS (12)	O			M		
	29	ARM PIVOT TUBE (1) AND PIVOT TUBE COLLARS (2)	O			M		
	30	ARM CYLINDER EARS (4), PINS (4), AND RETAINING HARDWARE	O			M		

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
	31	FORK ASSEMBLY	O			M		
	31A	FORK MECHANICAL STOPS (OPTIONAL)	O			M		
	32	FORK ASSEMBLY MOUNTING BOLTS (4)	O			M		
	33	FORK PIVOT TUBE COLLARS (2)	O			M		
	34	FORK CYLINDER EARS (4), PINS (4), AND RETAINING HARDWARE	O			M		
	*35	RESIDENTIAL CARRY CAN AND MOUNTING HARDWARE	O				M	
	36	FRONT HEADER ASSEMBLY INC. CYLINDER EARS			O		M	

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
	37	PACKER ASSEMBLY INC. CYLINDER EARS			O		M	
	38	PACKER CYLINDER PINS (4), AND RETAINING NUTS/BOLTS			O	M		
	39	PACKER GUIDE, RAILS AND WEAR SHOES			O		M	
	40	INTERIOR OF HOPPER AND MAIN BODY WALLS, FLOOR AND TOP DOOR				O	M	
	41	EXTERIOR OF HOPPER AND MAIN BODY WALLS, FLOOR AND TOP DOOR				O	M	

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
	42	SIDE ACCESS DOOR ASSEMBLY	O				M	
	43	CANOPY ASSEMBLY AND EXTENSION HARDWARE	O				M	
	44	TOP DOOR ASSEMBLY				O	M	
	45	TOP DOOR CYLINDER PINS (2), EARS (2), AND RETAINING HARDWARE				O	M	
	46	TOP DOOR CYLINDER U BOLT AND RELATED NUTS/BOLTS				O	M	
	47	TAILGATE ASSEMBLY				O	M	
	48	TAILGATE CYLINDER EARS (4), PINS (4), AND RETAINING HARDWARE				O	M	

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
	49	TAILGATE LATCH ASSEMBLY (2), PIVOTS (2), AND ROLLER PINS (2)	O			M		
	50	TAILGATE SEAL AND SEAL RETAINER		O		M		
	51	TAILGATE HINGE EARS (2), PINS (2), AND RETAINING HARDWARE				O	M	
	*52	TAILGATE SAFETY PROP	O				M	
	*53	SAFETY EQUIPMENT IS PRESENT? (E.G. FIRE EXTENGUISHER, FIRST AID KIT, ETC.)	O					
	54	OTHER:						
		*Denotes option or not all units O = Operator M = Maintenance						

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
4. OPERATION (MAIN CONTROLS)								
OBSERVE TRAVEL IS SMOOTH AND EVEN, SPEED IS NORMAL, CONTROLS ARE RESPONSIVE.								
	55	FORKS UP/ DOWN	**O**				**M**	
	56	ARMS UP/ DOWN	**O**				**M**	
	57	PACKER PACK/ RETURN/ AUTOPACK/ AUTOSTOP	**O**				**M**	
	58	FOLLOWER PACK/RETURN/ AUTOPACK/ AUTOSTOP	**O**				**M**	
	59	HOPPER TOP DOOR OPEN/ CLOSE	**O**				**M**	
	60	TAILGATE OPEN/CLOSE	**O**				**M**	

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
	61	SERVICE HOIST UP/DOWN				O	M	
PERFORM SAFETY LOCKOUT TESTS TO CHECK PROXIMITY/LIMIT SWITCHES								
	62	SIDE ACCESS DOOR TEST (SIDE ACCESS DOOR PROXIMITY SWITCH)	O				M	
	63	PACK TEST (PACKER FULLY EXTENDED PROXIMITY SWITCH)	O				M	
	64	AUTOPACK TEST (PACKER FULLY EXTENDED PROXIMITY SWITCH)	O				M	
	*65	PACK LOCKOUT/ TAILGATE TEST (TAILGATE UNLOCKED PROXIMITY SWITCH)	O				M	

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
	66	PACK/AUTO-PACK LOCK-OUT/ARMS TEST (ARMS ELEVATED PACK CUTOUT PROXIMITY SWITCH)	O				M	
	67	ARMS UP LOCKOUT/ HOPPER TOP DOOR TEST (HOPPER TOP DOOR PROXIMITY SWITCH)	O				M	
	68	ARMS UP LOCKOUT/ PACKER TEST (PACKER FULLY RETRACTED PROXIMITY SWITCH)	O				M	
	69	OTHER						
		*Denotes option or not all units O = Operator M = Maintenance						

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
5. OPERATION (MISC. CONTROLS AND FEATURES)								
CHECK CONTROL CONSOLE WARNING DEVICES ARE FUNCTIONNING.								
	70	PUMP SWITCH LAMP	O					M
	71	PACKER WARNING LAMP	O					M
	72	HOPPER TOP DOOR WARNING LAMP	O					M
	73	ACCESS DOOR WARNING LAMP	O					M
	74	TAILGATE UNLOCKED WARNING LAMP/ EXTERNAL ALARM (TAILGATE UNLOCKED PROXIMITY SWITCH)	O					M

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
	75	ARMS ELEVATED WARNING LAMP	O		O			M
	*76	SERVICE HOIST BODY RAISED WARNING LAMP/BUZZER				O		M
	CHECK EXTERNAL LAMPS AND MISCELLANEOUS ARE FUNCTIONING							
	*77	AUXILIARY CONTROLS	O					M
	78	STOP, SIGNAL AND TAIL LAMPS	O					M
	79	MARKER LAMPS	O					M
	80	HOPPER LAMP	O					M
	81	BACKUP LAMPS	O					M
	82	BACKUP FLOOD LAMPS	O					M

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
	83	STROBE LAMP	O					M
	84	CAMERA DUAL LAMPS	O					M
	85	ALTERNATING FLASHERS	O					M
	86	BACKUP ALARM	O					M
	*87	GLOBAL MOTION SENSORS	O					M
CHECK MISCELLANEOUS CONTROL CONSOLE DEVICES ARE FUNCTIONNING								
	88	THROTTLE ADVANCE SWITCH	O					M
	*89	ARMS ACTIVATED AUTOPACK SWITCH	O					M
	*90	FORK WIDTH SWITCH	O					M
	*91	WASH TANK				O		M

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
	92	OTHER:						
		*Denotes option or not all units O = Operator M = Maintenance						

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
6. HYDRAULIC SYSTEM								
		HYDRAULIC OIL TANK:						
	93	CHECK FOR LEAKS, DAMAGE, ETC. ON TANK	O				M	
	94	CHECK TANK IS SECURELY MOUNTED TO CHASSIS FRAME				O	M	
	95	CHECK OIL LEVEL IN TANK (ALL CYLINDERS RETRACTED)	O				M	

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
	96	CHECK OIL CONDITION	O				M	
	97	REPLACE OIL (MORE OFTEN IF REQUIRED)						M
	98	CHECK SUCTION BALL VALVE IS FULLY OPEN	O				M	
	99	CLEAN THE BREATHER CAP (REPLACE IF NECESSARY) (MORE OFTEN IF REQUIRED)						M
	100	CLEAN SUCTION STRAINER WITH VARSOL/ COMPRESSED AIR (REPLACE IF DAMAGED) (MORE OFTEN IF REQUIRED)						M
	TO PROTECT THE HYDRAULIC COMPONENTS OF YOUR NEW EQUIPMENT, THE RETURN LINE FILTER **MUST BE CHANGED AFTER THE 50 FIRST HOURS OF USE.** THEREUPON, THE FILTER SHOULD BE CHANGED ONCE EVERY 1000 HOURS OR FOLLOWING A MAJOR HYDRAULIC COMPONENT FAILURE.							

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
	101	CHANGE HYDRAULIC RETURN LINE OIL FILTER (MORE OFTEN IF REQUIRED)				M (NEW UNIT)		M
	102	CLEAN MAGNETIC PLUG (MORE OFTEN IF REQUIRED)						M
		PUMP:						
	103	INSPECT PUMP FOR LEAKS	O				M	
	104	ENSURE PUMP IS SECURELY MOUNTED				O	M	
	105	ENSURE DRIVELINE IS SECURELY MOUNTED					M	
		HYDRAULIC VALVE BANK:						
	106	INSPECT VALVE BANK FOR LEAKS	O				M	

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
	107	ENSURE VALVE BANK IS SECURELY MOUNTED				O	M	
	108	CHECK SYSTEM PRESSURE RELIEF VALVE(S) SETTINGS. ADJUST IF REQUIRED. (USE PRESSURE GAUGE. RECORD.)						M
	*109	CHECK ARMS DOWN PRESSURE RELIEF VALVE SETTINGS. ADJUST IF REQUIRED. (USE PRESSURE GAUGE. RECORD.)						M

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
		MISCELLANEOUS:						
	110	INSPECT ALL HYDRAULIC LINES FOR LEAKS, CHAFING	O				M	
	111	INSPECT ALL HYDRAULIC CYLINDERS AND MISC. HYDRAULIC COMPONENTS FOR LEAKS	O				M	
	112	CHECK PACK CIRCUIT PRESSURE SWITCH SETTING. ADJUST IF REQUIRED.						M
	*113	INSPECT ARMS UP/DOWN CAM(S) ARE SECURE AND TRIPPING DECELERATION VALVES(S)	O				M	

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
	114	OTHER:						
		*Denotes option or not all units O = Operator M = Maintenance						

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
7. PNEUMATIC SYSTEM								
	115	DRAIN AIR TANKS (AT THE END OF EACH DAY)			O			
	116	INSPECT AIR LINES FOR LEAKS			O			M
	117	REPLACE AIR FILTER ELEMENT						M
	118	REPLACE MIST SEPARATOR ELEMENT						M

	ITEM	DESCRIPTION	PRE-TRIP	AT LANDFILL	DAILY	WEEKLY	MONTHLY	1000 HRS
	119	LIGHTLY OIL AIR ACTUATORS						M
	120	OTHERS:						

ELECTRICAL SYSTEM

The electrical system is divided into two sections. The first section describes how the electrical components work and the second section describes how to adjust and repair the electrical components.

Wittke offers two different electrical systems. One is controlled by relay logic and the other one is controlled by an electronic controller (optional). Both systems are equivalent. The only difference between both of them is the control box located inside the cab.

ELECTRICAL SCHEMATICS

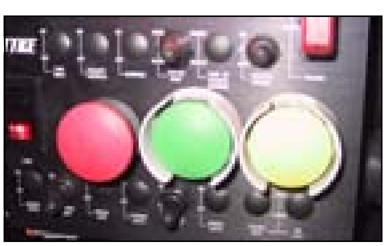
Two types of schematics are provided with Wittke trucks. First, there is the electrical schematic, which shows how components are wired to each other. This schematic is useful to diagnose electrical circuits.

The second one is the control schematic, which shows the truck logic. This schematic is used to find which components are involved in a specific circuit. If the truck is equipped with an electronic controller, this schematic is replaced by a configuration sheet, which is explained in details in the *Electronic Modules Troubleshooting Guide* (part # 90330).

HOW THE ELECTRICAL SYSTEM WORKS

The electrical system includes:

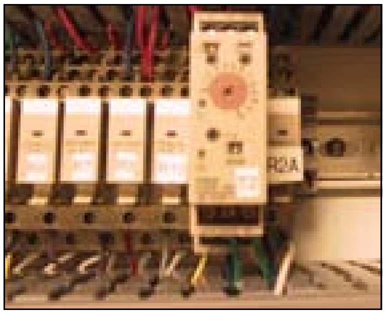
- Control panel
- Relay box
- Electronic controller (optional)
- Valve box
- Limit/proximity switches
- Harnesses



Control Panel (located centrally in the cab)

The front loader's push buttons, toggle switches and warning lamps are located in a centrally mounted control panel in the cab. Some units have auxiliary controls located on the curb or street side of the truck.

Relay Box (located in the cab)



The relay logic consists of a control system made up with traditional relays. To troubleshoot such a system, please refer to the electrical schematic provided with the truck and use the appropriate tools.

- **Main relay**: A high current relay centralizes power to the relay box in the cab.
- **Circuit breakers**: Manual reset breakers protect systems from excessive current.
- **Relays**: A relay is a series of switches influenced by a common coil but controlled from a remote location, such as a proximity switch.
- **Diodes**: Diodes ensure the current conducts in one direction only.
- **Timer**: The timer is a relay switch used to delay the return of the packer once it has completed a pack cycle. It is wired in the pack system and is set to 2 seconds. If the truck is equipped with an electronic controller, it is not possible to adjust the delay, which is also set, in this case, to 2 sec.

Electronic Controller



Some trucks are equipped with an electronic controller, making the truck more reliable by reducing the number of wires and components. Electrical maintenance is different from relay logic. The use of an electronic controller enables LabriePlus to perform remote troubleshooting, which facilitates the debugging process. Labrie Environmental Group offers training on this technology. To know more about electronic controllers and training schedule, please call LabriePlus.

Proximity Switches



Body-mounted proximity switches control the packer operation and provide the means for safety lockouts.

Harnesses



Harnesses connect all electrical components. They are generic and may contain wires and plugs that are not used. Make sure unused plugs are always protected by a cap in order to avoid electrical failure.

ADJUSTING AND REPAIRING ELECTRICAL COMPONENTS

The required electrical system adjustments include:

- Circuit Breakers and Fuses
- Adjusting the Proximity Switch Settings
- Packer Fully Retracted Proximity Switch
- Packer Fully Extended Proximity Switch
- Side Access Door Proximity Switch
- Top Door Fully Open Proximity Switch
- Tailgate Unlocked Proximity Switch
- Tailgate Fully Open Proximity Switch
- Arms Fully Retracted Proximity Switch
- Arms Partially Raised Proximity Switch
- Forks Fully Retracted Proximity Switch

- Body Raised Limit Switch (optional)

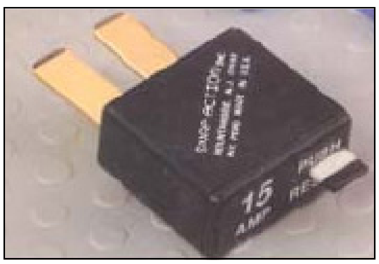
Circuit Breakers and Fuses

Power for the Wittke front loaders' electrical system is protected by two 30 A fuses and up to five manual reset circuit breakers (depending on the options).

Fuses

FUNCTION	AMPS	LOCATION
MAIN BATTERY POWER (2)	30 AMPS EACH	FITTED IN THE BATTERY BOX TO PROTECT RELAY BOX POWER SUPPLY

Manual Reset Circuit Breakers



Push the in-cab relay box's circuit breaker button to reset these circuits.

NOTICE

NEVER HOLD A CIRCUIT BREAKER BUTTON DOWN WHEN IT REFUSES TO RESET. SEVERE ELECTRICAL DAMAGE MAY RESULT. REPORT THIS TO YOUR SUPERVISOR AND MAINTENANCE DEPARTMENT.

***Note:** Consult the OEM manual for information on equipment not manufactured by Labrie Environmental Group.*

FUNCTION	AMPS	LOCATION
MAIN CONTROL CIRCUIT (F2)	10 AMPS	IN-CAB RELAY BOX
PROXIMITY/ LIMIT SWITCH SENSORS (F1)	10 AMPS	IN-CAB RELAY BOX
HOPPER/ MIRROR LAMP SWITCHES (F3)	10 AMPS	IN-CAB RELAY BOX
MONITOR (F4)	10 AMPS	IN-CAB RELAY BOX
STROBE LAMP/ ALTERNATING FLASHING LIGHTS/ BACKUP LIGHTS (F5)	15 AMPS	IN-CAB RELAY BOX

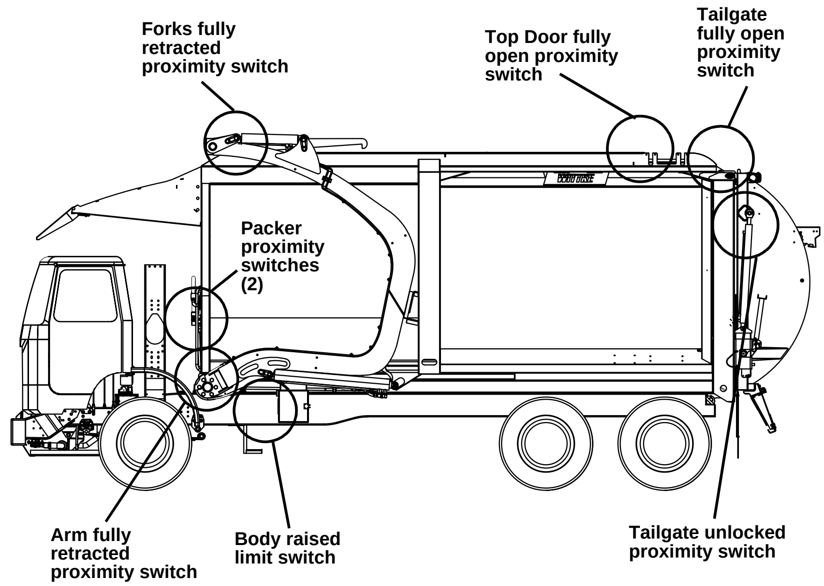
Adjusting the Proximity/Limit Switch Settings

Proximity/limit switches act as remote electrical on/off switches.

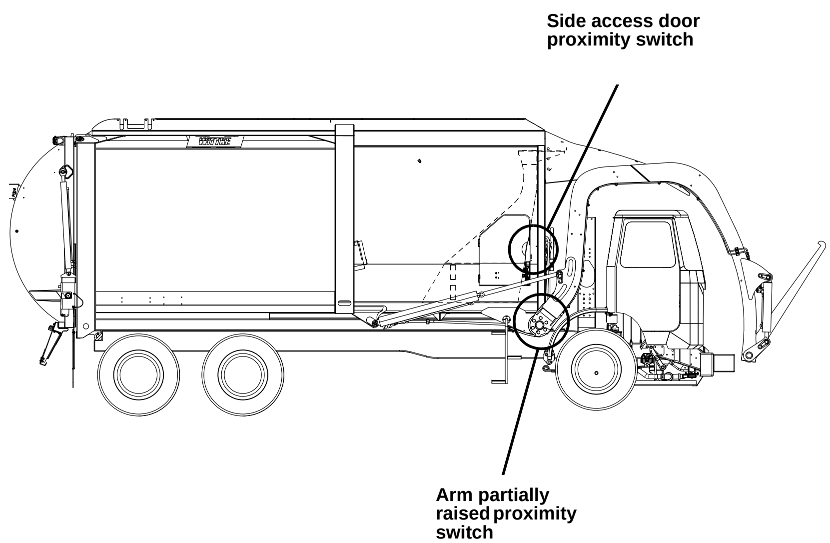
⚠ WARNING

Proximity/limit switches must function properly. Serious damage or death may result if you operate the front loader with improperly adjusted proximity switches.

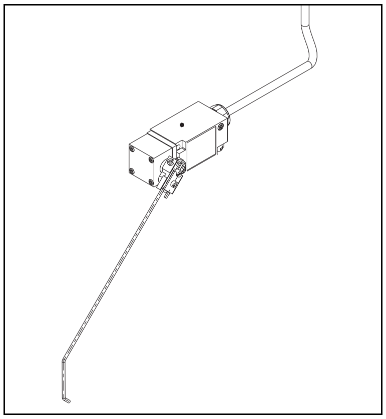
Proximity Switches on the Street Side



Proximity Switches on the Curb Side



Lever Arm Limit Switches

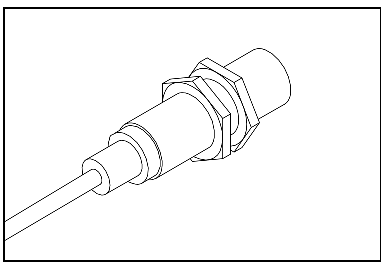


General adjustment procedure:

1. Loosen limit switch nut.
2. Move lever arm to approximate position where limit switch is to trip.
3. Tighten nut.
4. To fine tune limit switch, loosen nut slightly.
5. With a flathead screwdriver, turn the adjusting screw located at the center of the nut until a click is heard.
6. Tighten the nut.
7. Test operation; repeat steps 1 to 7 if necessary.

Note: ***Limit switches are optional.***

Proximity Switch Gap Adjustment

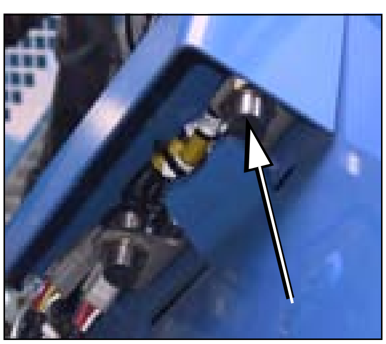


Once the proximity switch is positioned correctly (see procedures below), make sure that the gap between the target and the proximity switch is sufficient.

General gap adjustment procedure:

1. Loosen the proximity switch nuts.
2. Adjust the proximity switch so there is a gap of 3/8 inch (9.5 mm) between it and the target.
3. Tighten the nuts.
4. Test operation to make sure the proximity switch light comes on when the target is detected and the proximity switch itself works properly.

Packer Fully Retracted Proximity Switch



This proximity switch locks out the Arms up function and activates a warning lamps when the packer is not in the “home” position and also stops the packer when it reaches its fully retracted position. It is very important to adjust this proximity switch properly in order to avoid the packer hitting the hopper at the end of its stroke.

Location:

This proximity switch is mounted on the front wall of the body, on the street side.

IMPORTANT
THIS PROCEDURE MUST BE PERFORMED BY TWO PEOPLE.

Testing procedure:

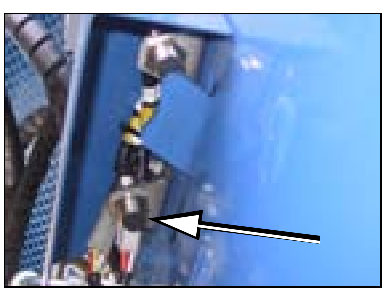
1. Empty all refuse from the body.
2. Initiate a Pack cycle and observe the “home” position of the packer when the cycles completes. Adjust the Packer fully retracted proximity switch if:

    - The packer stops before reaching the fully “home” position.
    - The pack cylinders remain pressured up or abruptly bottom out at the “home” position.

Adjustment procedure:

1. Move the packer about 1 inch back from the fully retracted position.
2. Adjust the proximity switch so it is active (the amber light on the proximity switch should be ON) when the packer reaches this position. Ideally, there should be a gap of 3/8 inch between the proximity switch and its target.
3. Test the packer for a full cycle. Ensure that there is no knocking noise at the end of the packer cylinder stroke.

PACKER FULLY EXTENDED PROXIMITY SWITCH



This proximity switch stops the packer when it reaches its fully extended position (pack cycle).

This proximity switch is mounted on the front wall of the body, on the street side.

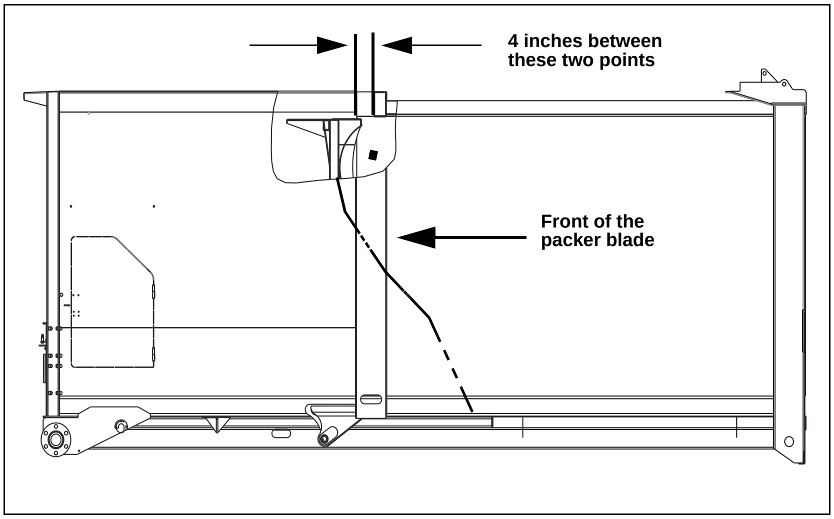
IMPORTANT
THIS PROCEDURE MUST BE PERFORMED BY TWO PEOPLE.

Testing procedure:

1. Empty all refuse from the body.
2. Initiate a pack cycle and observe the fully extended position of the packer. Adjust the Packer fully extended proximity switch if:
   - The packer stops before or after reaching the fully extended position (see picture below).

Adjustment procedure:

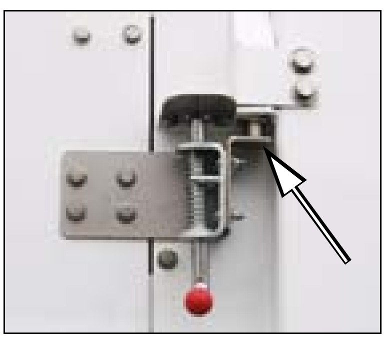
1. Move the packer so the packer blade is 4 inches before front of the mid body breaker bar.



2. Adjust the proximity switch so it is active (the amber light on the proximity switch should be ON) when the packer reaches this position. Ideally, there should be a gap of 3/ 8 inch between the proximity switch and its target.
3. Test the packer for a full cycle.

SIDE ACCESS DOOR PROXIMITY SWITCH

This proximity switch cuts all hydraulic power when the side access door is not closed.



Location:

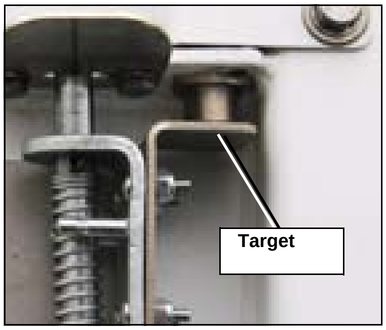
The side access door proximity switch is mounted on the side door frame.

Testing procedure:

1. Open the side access door approximately 2 inches (5 cm) and attempt to operate any hydraulic function. All hydraulic functions should be disabled.

⚠ DANGER

INJURY OR DEATH MAY OCCUR IF YOU ATTEMPT TO ENTER THE BODY WHILE THE PACKER OR ARMS ARE WORKING.

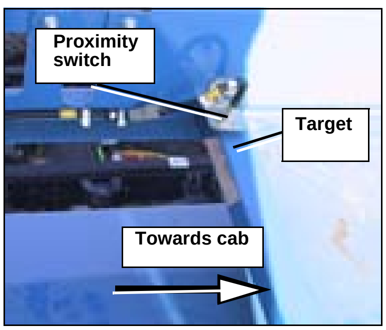


2. If all hydraulic functions are not disabled, the proximity switch is faulty and must be replaced.

Adjustment procedure:

Refer to “Proximity Switch Gap Adjustment” on page 40.

TOP DOOR FULLY OPEN PROXIMITY SWITCH



The Top door fully open proximity switch controls the cutout of the arms up function if the top door is not fully open. It also illuminates the Top door warning lamp on the control console.

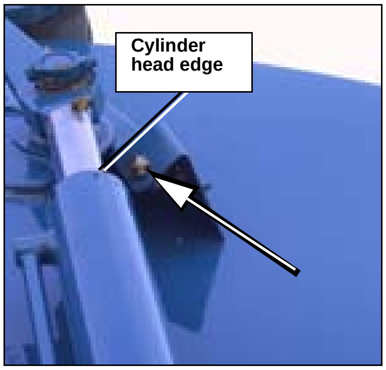
Location:

The Top door fully open proximity switch is located on the street side, on rear part of the top door.

Adjustment procedure:

1. Fully open the hopper top door.
2. Turn off the hydraulic pump and the engine.
3. Climb on the roof.
4. Adjust the proximity switch so it detects the target when the top door is fully open.
5. Start the engine and turn on the hydraulic pump.
6. Close the hopper top door on about an inch. The proximity switch should not detect the target and the Hopper top door warning lamp on the console should turn off.
7. Make sure there is a gap of 3/8 inch between the proximity switch and the target.

TAILGATE UNLOCKED PROXIMITY SWITCH



The tailgate unlocked proximity switch disables the pack cycle, illuminates the Tailgate unlocked warning lamp in the cab and sounds the backup alarm if the tailgate is not completely closed. In addition, this proximity switch disables packing.

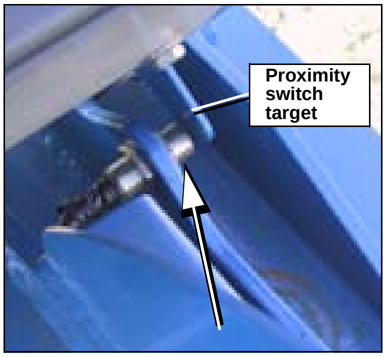
Location:

The Tailgate Unlocked Proximity Switch is located on the street side of the tailgate, near the tailgate cylinder.

Adjustment procedure:

1. Make sure that the tailgate is closed and locked.
2. Place the Tailgate unlocked proximity switch so it faces and detects tailgate cylinder head edge. The Tailgate unlocked warning lamp on the console should be off.
3. Slightly open the tailgate until it is unlocked. The proximity switch should not detect the cylinder anymore. The Tailgate unlocked warning lamp on the console should be on and the backup alarm should be heard.
4. Repeat the adjustment procedure until the proximity switch detects the cylinder when the tailgate is locked and does not detect the cylinder when the tailgate is unlocked.

TAILGATE FULLY OPEN PROXIMITY SWITCH



The tailgate fully open proximity switch allows you to enable the ejection cycle when the tailgate is fully open. When fully open, it bypasses the fully extended proximity switch that limits packer travel to the fully extended position and allows the packer to complete a full eject sweep.

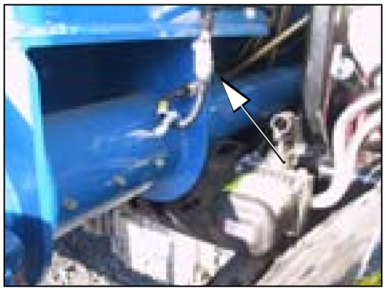
Location:

The tailgate fully open proximity switch is located on the street side, near the tailgate hinge

Adjustment procedure:

1. Fully open the tailgate.
2. Adjust the tailgate fully open proximity switch so it detects the target. The Tailgate fully open warning lamp should turn on.
3. Slightly close the tailgate (to about an inch). The proximity switch should not detect the target and the Tailgate fully open warning lamp should turn off.
4. Repeat the procedure until the proximity switch is properly adjusted.

ARMS PARTIALLY RAISED PROXIMITY SWITCH



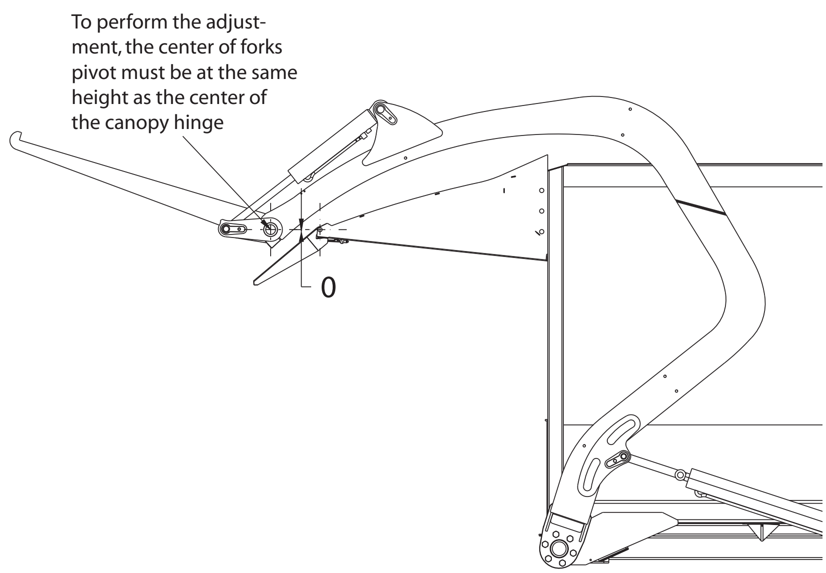
This proximity switch stops the arms at mid-height if the packer is not in the “home” position.

Location:

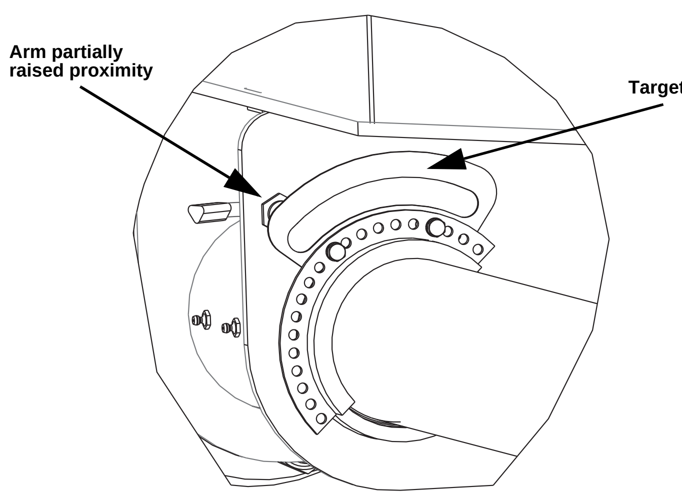
The Arms partially raised proximity switch is located on the arm pivot tube (between cab and body), on the curb side.

Adjustment procedure:

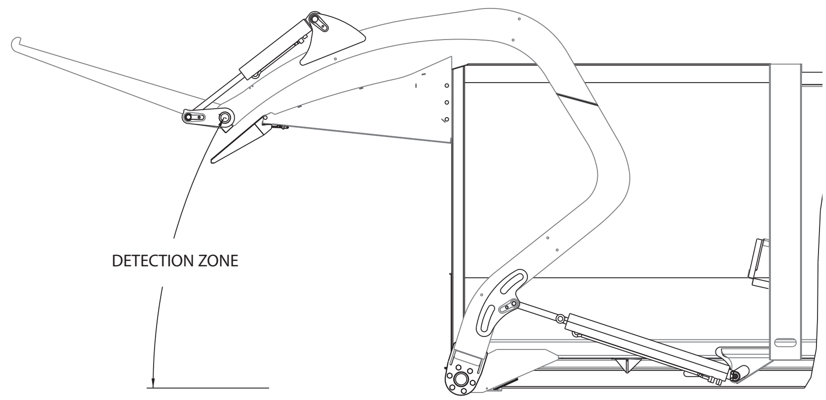
1. Raise the arms until the center of the forks pivot is at the same height as the center of the canopy hinge.



2. Adjust the target so it activates the proximity switch.

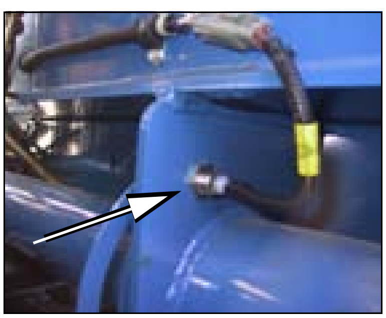


3. Make sure that the proximity switch detects the target on all the detection zone shown below.



4. Once the proximity switch and the target are adjusted, lower the arms.
5. Start the packer.
6. While the packer is in motion, raise the arms. They should stop at mid-height.
7. If it is not the case, readjust the proximity switch and its target.

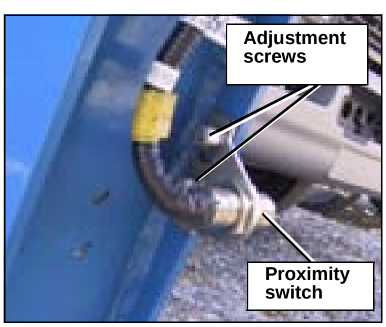
Arms and Forks Fully Retracted Proximity Switch



The Arms fully retracted proximity switch ensures that the Arm not stowed warning lamp on the console illuminate if the arms are not completely parked. Both arms and forks must be completely parked in order to turn off the Arm not stowed warning lamp.

Location:

The Arms fully retracted proximity switch is located on the arm pivot tube (between cab and body), on the street side.



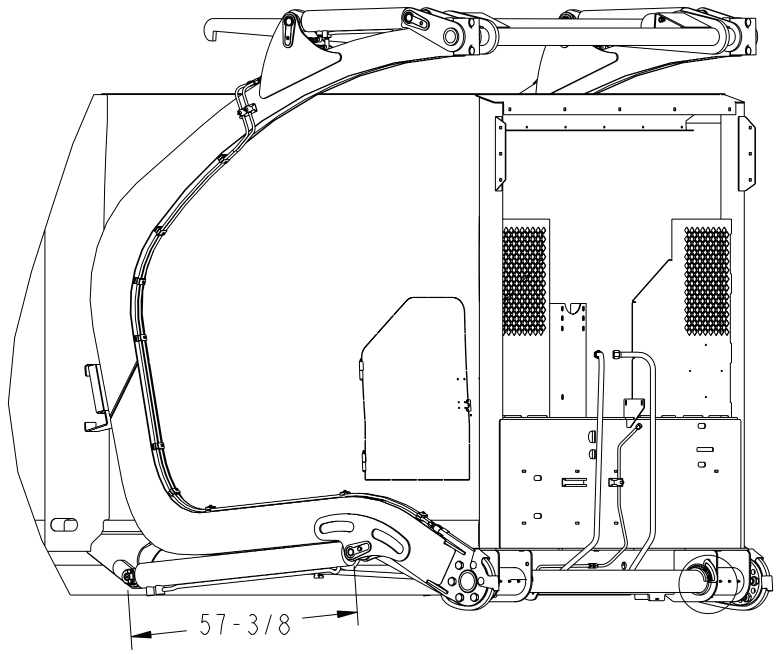
The Forks fully retracted proximity switch ensures that the Arm not stowed warning lamp on the console illuminate if the arms are not completely parked. Both arms and forks must be completely parked in order to turn off the Arm not stowed warning lamp.

Location:

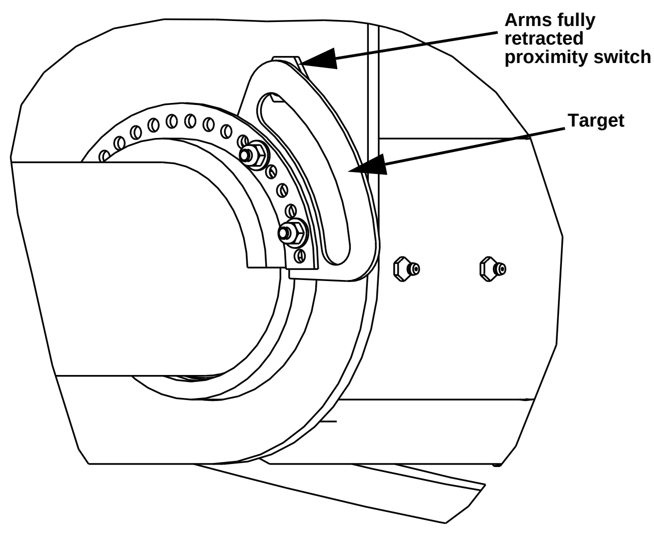
The Forks fully retracted proximity switch is located on the street side fork.

Adjustment procedure:

1. Raise the arms until there is 57 3/8 inches between both cylinder attachments (center to center).

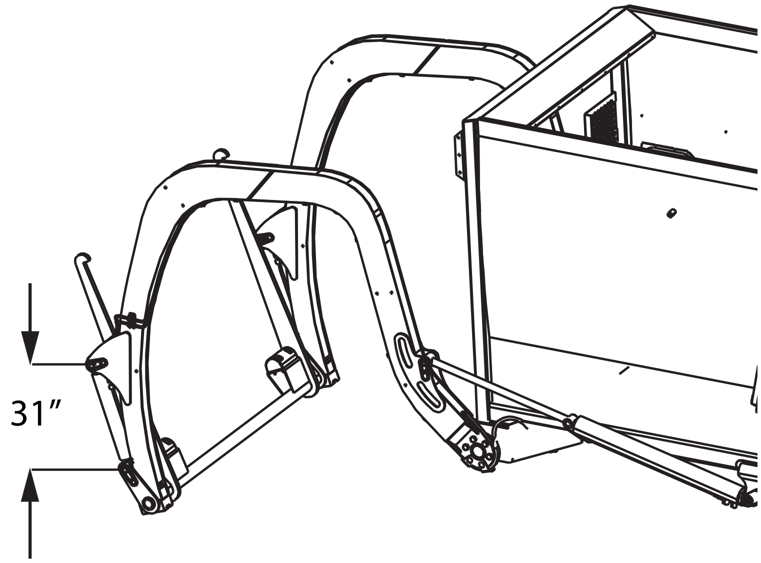


2. Adjust the target so it activates the proximity switch. (proximity switch light on).



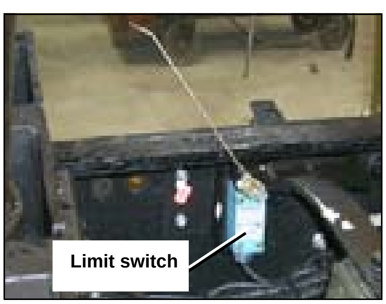
3. Lower the arms.

4. Retract the forks until there is a distance of 31 inches between both fork cylinder attachments (center to center).



5. Adjust the target so it activates the proximity switch (proximity switch light on).
6. Perform tests to see if the Arm not stowed warning lamp reacts properly when the forks or the arms are not fully parked.
7. If the Arm not stowed warning lamp does not “react” properly, readjust the proximity switches and their targets. The Arm not stowed warning lamp should turn off only when the arms are fully raised and the forks fully retracted.

BODY RAISED LIMIT SWITCH (OPTIONAL)



A limit switch located on the truck chassis activates the backup alarm, and a warning buzzer sounds as soon as the body is about one foot above the chassis. Adjust the limit switch accordingly (refer to “Lever Arm Limit Switches” on page 40).

This safety feature is provided to to warn people around that the truck in unloading and to tell operator that the body is still raised.

Note: The Body Raised limit switch location may vary according to chassis model.

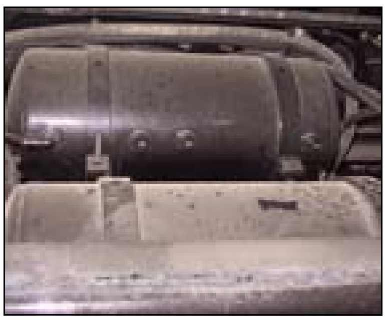
Pneumatic System

How the Pneumatic System Works

The pneumatic system includes:

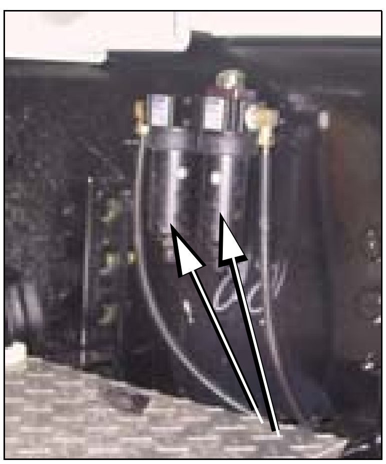
- Air supply
- Filtering system
- Controls
- Valve box and air valves
- Air Actuators

Air supply



Air is drawn from the chassis air tank, passes through an air and mist filter system and into the valve box. The system runs at approximately 120 psi.

Filter System



The chassis air supply is filtered before it is used in the control circuit. Two filters are fitted on the street side. Air supply is passed through an air filter, a mist separator and then routed to the air valve box.

- Filter elements should be replaced as per the maintenance schedule guidelines at the beginning of this chapter.
- The filter bowls and chassis air tanks must be manually drained daily to remove moisture.

NOTICE

Poorly maintained pneumatic control systems are a major cause of packer control failure.

In-Line Lubricator (optional)

Recommended for use in cold and dry climates, the optional lubricator is fitted in line after the mist separator. It is filled with air tool oil which is bled into the system to ensure adequate lubrication.

Controls

Standard arms/forks control is by mean of a dual handle joystick, mounted next to the driver.

***Note:** The arms up and main joystick's air lines are the only lines with a cutout valve. This cutout valve cuts air to the joystick and to the arm up function when the packer is not in the "home" position or when the top door is not fully open.*

Auxiliary Controls

Auxiliary controls can be located outside or in the cab (on curb side). The Auxiliary controls switch must be in the On position in order for the auxiliary controls to operate.

The throttle advance switch fitted to the auxiliary control station will advance the engine RPM to 1500 when activated. The transmission must be in neutral, and the engine ECM programmed to act on the input signal.

With the throttle advance switch in the "auto" position, the system will advance to 1500 RPM when the Pack or Return functions are activated.

Valve Box and Air Valves



Mounted behind the cab, the valve box houses the solenoid-operated air valves that direct air to the air actuators on the hydraulic valve bank. Power is required to energize the solenoid so air can pass to the work section dedicated to that particular air valve.

Supply air from the chassis air tank passes through the filters then feeds the air valves in the valve box. These normally closed air valves are grouped into banks capped with manifold ends with ports for supply and exhaust air to be routed. When an air valve opens, air passes through a single air line from the air valve and leads to one of two ports on an air actuator on the hydraulic valve bank or to the joystick (cutout).

On units equipped with the Auto-dump, the pneumatic valves are replaced by electrical valves.

	Valve Box Air Valves
TAILGATE OPEN	EXTENDS THE TAILGATE CYLINDERS
TAILGATE CLOSE	RETRACTS THE TAILGATE CYLINDERS
HOPPER TOP DOOR OPEN	RETRACTS THE HOPPER TOP DOOR CYLINDER
HOPPER TOP DOOR CLOSED	EXTENDS THE HOPPER TOP DOOR CYLINDER
PACK	EXTENDS THE PACKER CYLINDERS
RETURN	RETRACTS THE PACKER CYLINDERS

	Valve Box Air Valves
Arms Up Cutout	Cuts air used to retract the arm cylinders
Tipper Up	Cycles tipper actuator up
Tipper Down	Cycles tipper actuator down
main Joystick Cutout	Disables joystick operation with the hydraulic pump off

Air Actuators



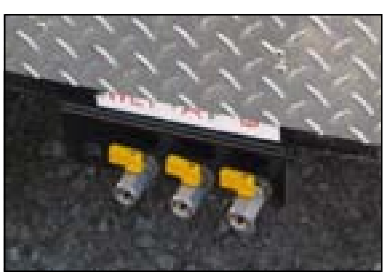
Air from the air valves and joystick is routed to the air actuators mounted on the hydraulic valve sections. The air actuators are dedicated to a particular hydraulic function and influence the direction in which the valve spool is moved. Once the air supply is removed from the actuator, the valve spool is centered by its spring, and the actuator returns to the neutral poisition.

Central Air Drain Cocks (optional)

A series of air drain cocks are provided on a bracket at the battery box.

Note:

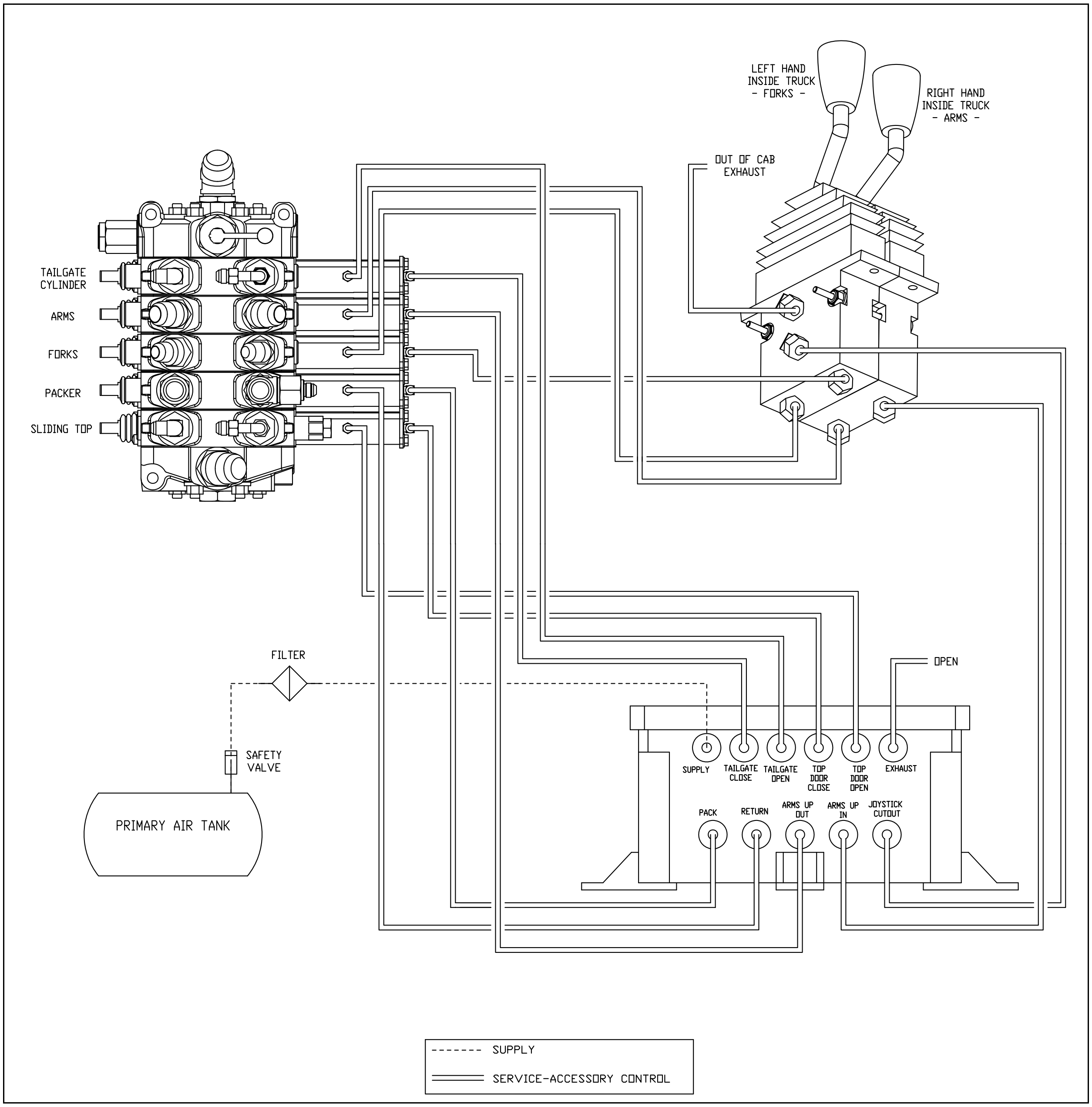
- All air tanks should be drained daily
- Be sure to drain the wet tank first.
- Poorly maintained pneumatic control systems are a major cause of packer control failure.
- Your air drain cocks may differ slightly from those shown at left.



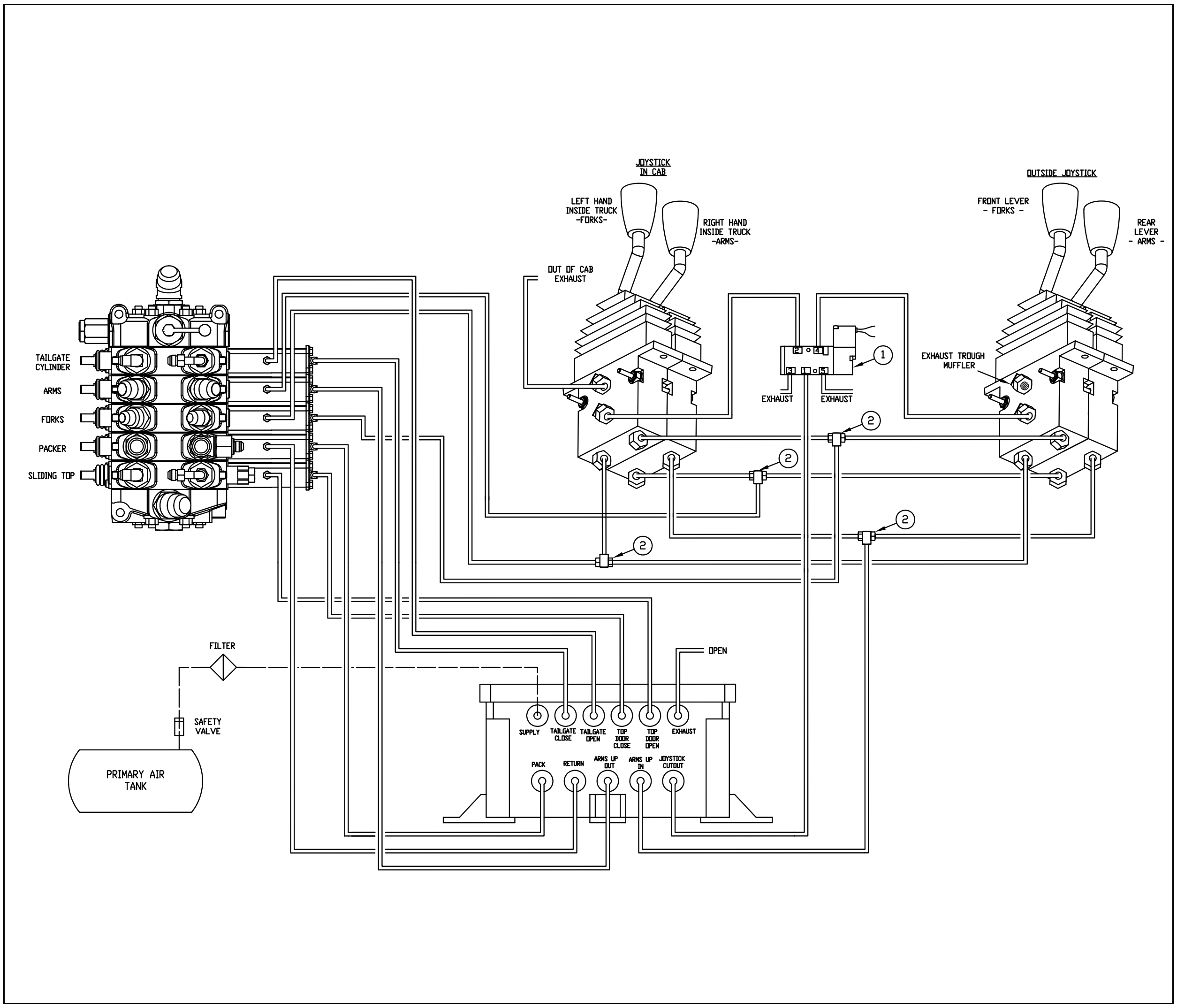
PNEUMATIC SYSTEM SCHEMATICS

Each WITTKE truck is provided with its specific pneumatic schematic. For more details on the pneumatic system of your unit, refer to this schematic.

5-section Hydraulic Valve (w/o Auto-dump)



5-section Hydraulic Valve with Auxiliary Controls



HYDRAULIC SYSTEM

HYDRAULIC OIL TANK

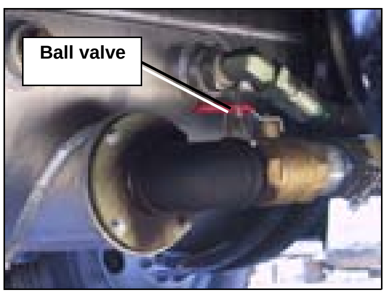


The hydraulic oil tank is 60 US gallon capacity reservoir mounted to the chassis frame. It houses the reservoir return line filter assembly, as well as a suction line strainer. Fitted to the tank is a breather cap which allows the tank to breathe as oil is drawn out of the tank. It is critical to inspect the breather cap for cleanliness and serviceability on a regular basis. A ball valve is provided in the suction line in order to isolate the tank during maintenance.



NOTICE

THE BALL VALVE MUST BE OPEN WHILE YOU OPERATE THE HYDRAULIC PUMP. SEVERE DAMAGE TO THE HYDRAULIC PUMP WILL OCCUR IF IT IS RUN WITH THIS VALVE CLOSED.



RETURN LINE FILTER



Oil returning from the valve bank passes through a 7 micron filter mounted in the tank. Refer to “Maintenance Checklist” for more details on the replacement frequency.



RETURN LINE FILTER ELEMENT

While every effort is made at the Labrie Environmental Group factory to ensure clean hydraulic systems, it should be noted that most hydraulic system manufacturer's recommend the filter be replaced after a break-in period. Labrie Environmental Group's recommendation is to replace this filter element after a break-in period of 50 hrs operational use.

ROUTINE MAINTENANCE

Routine element replacement will ensure that contaminants trapped due to ingestion and component wear are removed from the system by maintenance.

The replacement interval may be determined by operational duty cycle, operating conditions and local maintenance schedules.

Labrie Environmental Group recommends the filter element be replaced twice a year (refer to "Maintenance Checklist").

The element must also be changed following a major hydraulic component failure.

ELEMENT REPLACEMENT PROCEDURE

1. Complete the lockout/tagout procedure.

Note: ***Keep tools, working area and equipment clean. A pan will be required to collect a small amount of oil lost as the element is removed.***

The filter housing is fitted with a check valve, therefore it is not necessary to drain the hydraulic tank.









2. Loosen the 4 cover plate bolts using a ½-inch wrench, rotate through 45° and lift off.
3. Use an oil tray to pick up oil.
4. Carefully remove the element, rotating it as you do so to release suction.
5. Inspect O-rings (on filter and on cover plate) and housing for damage. Replace as necessary.
6. Moisten sealing surfaces (with oil) on the filter housing and cover plate.
7. Install element into housing, carefully locating the element onto the spigot.
8. Replace cover plate.
9. Operate hydraulic system and check for leaks.

HYDRAULIC OIL

Factory filled oil is tested for cleanliness. Hydraulic oil is the lifeblood of the system. Particles in the oil will devastate any hydraulic system overtime, therefore regular oil changes will most likely extend the life of components and equipment.

Oil should be replaced when it becomes oxidized, when it has a significant change in color and/or becomes milky or cloudy. Laboratory analysis is an effective method of obtaining accurate information on the cleanliness of hydraulic oil.

The renewal interval of hydraulic oil may be determined by operational duty cycle, operating conditions and local maintenance schedule.

It is recommended to replace the hydraulic oil at least once a year or when contaminated.

Recommended Lubricant

Minimum requirement for hydraulic oil:

Viscosity of 320cSt at 104 °F (40 °C) and 6.4cSt at 212 °F (100 °C).

Must contain anti-wear and anti- foam additives, rust and oxidation neutralizers and self-protecting agents.

Must meet MIL-H-5606 or SAE IOW “MS” standards. The following oils may be used in the WITTKE:

Shell Tellus 32 or T-32

NOTICE

DO NOT MIX DIFFERENT BRAND OF OILS. IN DOUBT, DRAIN AND REFILL WITH NEW OIL.

IMPORTANT

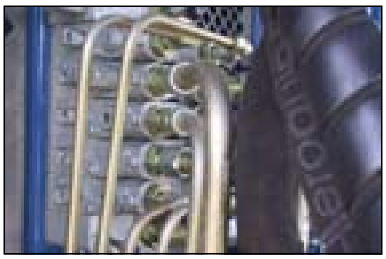
IT IS CUSTOMER RESPONSIBILITY TO USE OIL THAT IS APPROPRIATE FOR THE CLIMATE.

HYDRAULIC PUMP



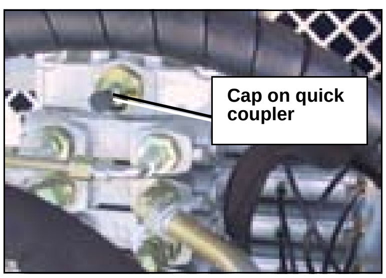
Supply oil from the tank enters the hydraulic pump through the suction line. Pressurized oil exits the hydraulic pump through the pressure line directly to the directional control valves. A return line exits the hydraulic pump and runs excess oil back to the oil tank. Refer to the pump OEM for more information.

DIRECTIONAL CONTROL VALVE



Pressurized oil is directed from the hydraulic pump to a bank of stack-type directional control valves mounted on the front header of the WITTKE body. Rubber gaskets seal each valve section.

The valve bank on a commercial unit is comprised of:



a **Inlet Section**: the oil enters the valve bank through the top of the inlet section where it is then directed to the work sections below. The pressure test port is located at the front of the inlet section. Remove the cap on the quick coupler and install a pressure gauge to read the system operating pressure.

b **Working sections:** hopper top door, tailgate, arms, forks and pack circuits are controlled by a work section dedicated to each function. Air actuators attached to the work section shift the spool in the desired direction to allow pressurized oil to operate the hydraulic cylinders. Returning oil is allowed to escape to tank via the return passage, outlet section and return lines.

c **Outlet Section:** caps the bottom of the valve bank to provide a path for returning oil to travel to the return line filter in the tank.

PRESSURE RELIEF VALVE

The pressure relief valve is fitted in the inlet section of the valve bank and protects the hydraulic components from damage caused by loads in excess of 2500 psi (STARLIGHT™) or 2750 psi (SUPERDUTY™). When pressure exceeds the setting of the relief valve, the oil overcomes the adjustment spring and opens the relief valve allowing oil to return to the tank.

WORK CIRCUITS

The circuits have been listed from top to bottom as they appear in the valve bank assembly.

Note: The following list is for the commercial front loader only. See following section for residential configuration.

1. **Hopper Top Door Circuit**: The hopper top door circuit includes one double-acting hydraulic cylinder and two flow restrictors.
2. **Tailgate Circuit**: The tailgate circuit consists of two double-acting hydraulic cylinders, one lock valve and two flow restrictors.
3. **Arms Circuit**: The arms circuit consists of two double-acting cylinders and a deceleration valve.
4. **Forks Circuit**: The forks circuit consist of two double-acting cylinders.
5. **Pack/Return Circuit**: The pack circuit consists of two double-acting, 3-stage cylinders, a pilot operated check valve and a pressure switch.

ARMS UP DECELERATION VALVE



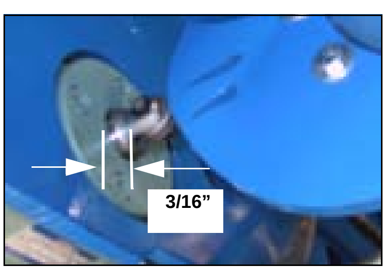
The arms up deceleration valve automatically decelerate the arms as they are raised to the dump position. A cam bolted to the arm pivot tube rotates as the arms are raised and gradually depresses the valve spool, reducing the flow of oil exiting the tube end of the arm cylinders.

Note: The deceleration valve greatly reduces impact on the arm assembly, body structure, and hydraulic components.

Location:

Fitted to the underside of the body, behind the arm pivot tube on the curbside.

Adjustment procedure:



1. Raise the arms up until they rest on the arms stops.
2. Position the cam so it depresses the spool of the deceleration valve until there is approximately 3/16 inch (4.75 mm) of the spool still exposed.
3. Tighten the retaining bolts of the cam.

4. Lower and raise the arms while running the engine at idle speed and again while running the engine at 1500 rpm.

Note: ***The arms should slow when they are at approximately 18 inches (45.72 cm) away from the arm stops and gently come to rest against the arm stops.***

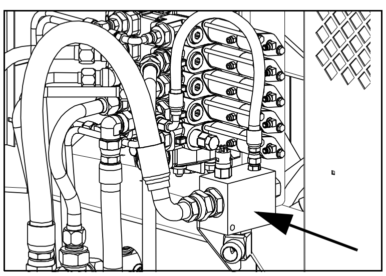
5. If the arms reach the stops with jarring impact or the arms stop before reaching the arm stops:

    a Loosen one retaining bolt and tap the cam in the required direction.

    b Tighten the retaining bolt of the cam and repeat step 4.

6. Attach a container to the forks and repeat step 4 and step 5.
7. Remove the container from the forks and repeat step 5 and step 6 until the arms decelerate with and without a container on the forks.
8. Tighten the locking setscrew.

PACK CIRCUIT DUMP VALVE



The pilot operated check valve (dump valve) is fitted into the pack hydraulic circuit for the purpose of speeding up the return stroke of the packer.

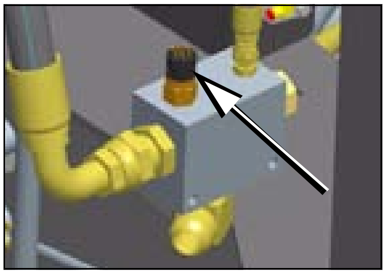
Pressure in the pilot line during the return stroke opens the dump valve and allows approximately 50 percent of the oil exiting the cylinders to go directly to the hydraulic tank. The dump valve is non-adjustable.

Note: ***Symptoms of pack circuit dump valve failure include poor payloads; slow cycle times; low pressure readings during the pack cycle.***

Location:

The pack circuit dump valve is fitted on to the front header behind the driver side of the cab, on the street side of the hydraulic valve.

Pressure Switch



The pressure switch ensures the packer returns to the “home” position during a pack cycle, when the body is nearing capacity and the is therefore unable to complete a full sweep.

Note: ***Symptoms of pressure switch failure include poor payloads; premature return of packer during pack cycle; failure of to return during pack cycle.***

Location: The pressure switch is fitted on the pack circuit dump valve.

Pressure Switch Adjustment

Both commercial and residential front loaders are equipped with a pressure switch set to 2350 psi (Starlight™) or 2600 psi (Superduty™).

Note: This procedure must be carried out when the body is full and the packer fully extended proximity switch is inoperable due to insufficient packer travel.

To adjust the pressure switch:

1. Check the main pressure and verify that it is correctly set to 2500 psi (Starlight™) or 2750 psi (Superduty™).

Note: ***Leave the pressure gauge in place.***

2. Locate the pressure switch and remove the cap screw plug.
3. Insert the allen wrench into the adjustment screw.
4. With the engine running and the pump switch on, raise the engine rpm to 1500 and initiate a pack cycle and watch the pressure gauge. Note when the packer begins the return cycle.

Note: ***If the setting is incorrect, the packer will either return early (before the system pressure reaches 2350 psi for the Starlight™ or 2600 psi for the Superduty™), or it will continue packing the load after system pressure has passed 2350 psi (Starlight™) or 2600 psi (Superduty™).***

5. If the system does not “react” properly, lower the main pressure to 2350 psi (Starlight™) or 2600 psi (Superduty™).
6. Adjust the pressure switch by screwing or unscrewing ¼ turn at a time. The valve should be pressurized momentarily. If the pressure stays when you turn the

screw in ¼ turn, that means the switch pressure is the same as the relief valve, for instance, 2350 psi (STARLIGHT™) or 2600 psi (SUPERDUTY™).

7. Readjust the main relief to 2500 psi (STARLIGHT™) or 2750 (SUPERDUTY™).
8. Repeat step 4 and recheck the pressure reading.
9. When you are satisfied the pressure setting is correct (150 psi below main system pressure), remove the allen key and replace the cap screw plug.
10. Remove the pressure gauge.

Timer Adjustment

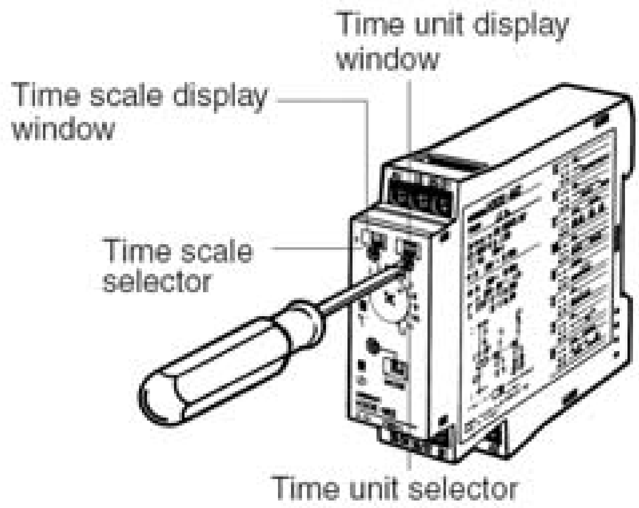
The timer is a relay switch used to delay the return of the packer once it has completed a pack cycle. It is wired in the pack system and is set to 2 seconds. If the truck is equipped with an electronic controller, it is not possible to adjust the delay, which is also set, in this case, to 2 sec.

The desired time unit is displayed in the time unit display window above the time setting dial.

IMPORTANT
ALWAYS SET TIME UNIT TO SECONDS.

Time scale (0.1 or 1) is selected with the time scale selector at the upper left corner of the front panel, it appears in the scale range display window above the selector.

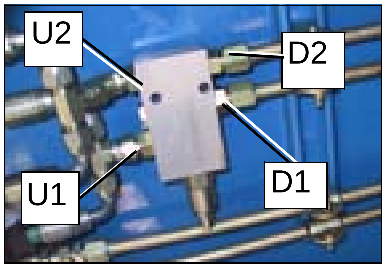
IMPORTANT
ALWAYS SET THE TIME SCALE TO 1.



To adjust the timer:

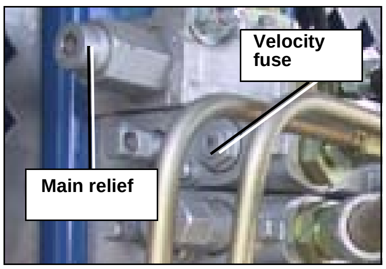
1. Open relay box.
2. Adjust the potentiometer to set up the timer.

TAILGATE LOCK VALVE



The tailgate locking mechanism is equipped with hydraulic safety systems that prevent accidental unlocking of the tailgate during operation. One of the systems is the velocity fuse with the **"power bleed"** and the other is the lock valve.

The spool inside the tailgate section of the valve is designed in such a way that it will allow pressure to pass through it each time the pressure is building up in the hydraulic system (i.e.: when the packer is working). The pressure "burst" goes to the holding valve into port "D1" and then out to the cylinder by port "U1". This will keep the tailgate cylinders pressurized and the tailgate closed when packing material.



The velocity fuse, located on the valve, will make sure to drain any slow moving oil coming from the piston side of the tailgate cylinders. Since the rod side is being pressurized with the "Power bleed" system, the other side has to drain to avoid any pressure build-up. The velocity fuse makes the piston side open to tank when the oil is moving under 3 gallons per minute and will shut when a flow signal is sent.

Note: Refer to the main hydraulic schematic.

Location:

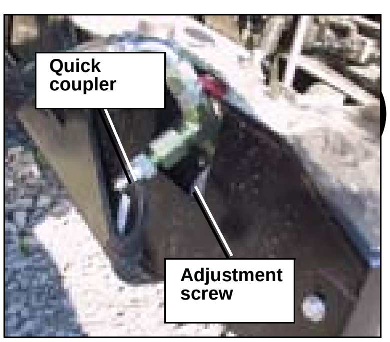
The tailgate lock valve is located on the underside of the body, near the tailgate.

SERVICE HOIST (OPTIONAL)

The service hoist circuit is independant of the main work circuits and is operated by an electric hydraulic pump with adjoining oil tank. Two small bore cylinders allow the body to be raised for maintenance purposes.

NOTICE

THE SERVICE HOIST IS NOT INTENDED TO LIFT A LOADED BODY.



Adjustment procedure:

Note: Should adjustment be required, an adjustement screw is located on the side of the pump body, under the protective cover.

1. Remove the protective cover.
2. Install a 3000-psi gauge on the quick coupler of the pump.

3. By using the pump lever, raise the body until the cylinders reach the end of their stroke.
4. Check pressure while the body is held fully raised.
5. The pressure reading shall be at 2000 psi. Adjust the relief if necessary.
6. Turn the adjustment screw clockwise to increase the pressure and counterclockwise to decrease it.

Arms Down Work Section

Designed to protect the arm hydraulic circuits, the arms down work section is equipped with a work port relief valve in the arms down outlet port only and is preset to 1000 psi.

NOTICE

TAMPERING WITH THE WORK PORT RELIEF VALVE MAY CAUSE SERIOUS DAMAGE TO THE ARMS CIRCUIT AND VOID WARRANTY.

Location:

Main hydraulic valve bank, on the front header of the body.

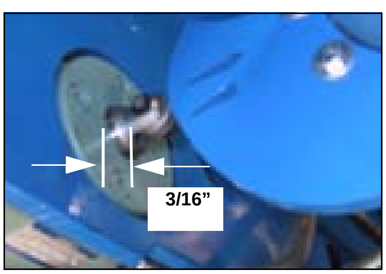
Arms Down Deceleration Valve (Optional)

The arms down deceleration valve automatically decelerates the arms as they are lowered. A cam bolted to the arm pivot tube rotates as the arms are lowered and gradually depresses the valve spool, reducing the flow of oil exiting the shaft end of the arm cylinders.

Note: The deceleration valve greatly reduces impact on the arm assembly, body structure, and hydraulic components.

Location:

Fitted to the underside of the body, behind the arm pivot tube on the street side.



Adjustment procedure:

1. Lower the arms down as far as possible.
2. Position the cam so it depresses the spool of the dceleration valve until there is approximately 3/16 inch 94.75 cm) of the spool still exposed.

3. Tighten the retaining bolts of the cam.
4. Raise and lower the arms while running the engine at idle speed and again while running the engine at 1500 RPM.

Note: ***The arms should slow when they are approximately 18 inches (45.72 cm) away from being lowered and gently come to rest at the bottom of their travel.***

5. If the arms reach the bottom of their travel with jarring impact or the arms stop before being fully lowered:

   a Loosen the retaining bolt.

   b tap the cam in the required direction.

   c Tighten the retaining bolt of the cam and repeat step 4.

6. Attach a container or carry can to the forks and repeat step 4 and step 5.
7. Remove the container from the forks and repeat step 5 and step 6 until the arms decelerate with and without a container on the forks.
8. Tighten the locking setscrew.

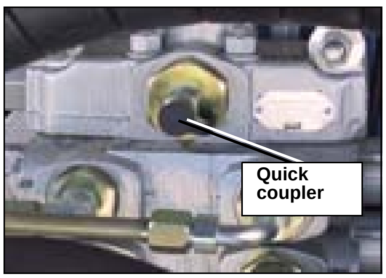
MAIN SYSTEM PRESSURE ADJUSTMENT

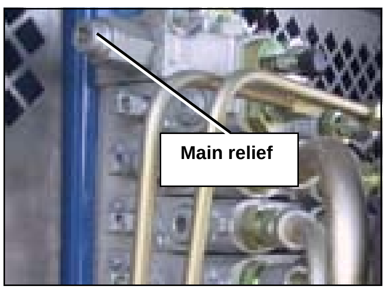
As with all hydraulic systems, it may be necessary to periodically check and adjust pressure relief settings.

Commercial Front Loader

Note: The system pressure should be at 2500 psi (STARLIGHT™) or 2750 psi (SUPERDUTY™).

Adjustment procedure:





1. Remove the cap on the quick coupler located at the top of the main valve bank. Insert a 0-3000 psi pressure gauge.
2. With the engine running and the pump switch on, raise the engine RPM to 1500 and return all hydraulics to their “home” position (packer at the front of the body, arms down, forks down, top door open, tailgate closed). Note the reading on the gauge.
3. If adjustment is required (system pressure is higher or lower than 2500/2750 psi, depending on truck model), switch off the pump and locate the pressure relief valve screwed into the inlet section of the main valve bank.
4. Loosen the locknut and turn the screw clockwise to increase system pressure, counterclockwise to decrease.
5. Repeat step 2.
6. When the hydraulic pressure is set to 2500/2750 psi (depending on truck model), tighten the locknut and recheck.
7. Remove the gauge.

HYDRAULIC HOSE

Labrie Environmental Group uses premium quality hydraulic hose designed specifically for use in our hydraulic systems. All pressure hoses have a maximum working pressure of at least 3000 psi, with a x4 burst pressure rating. The hydraulic hose type is identified on the hose covers, in the “lay line”. When replacing any hydraulic hose, it is extremely important that the replacement hose carries the same SAE rating as the original hose.

Hose types are listed by a designation or number set by a regulatory authority such as ISO and the SAE (Society of Automotive Engineers). These regulatory bodies set standards in the hydraulic hose industry.

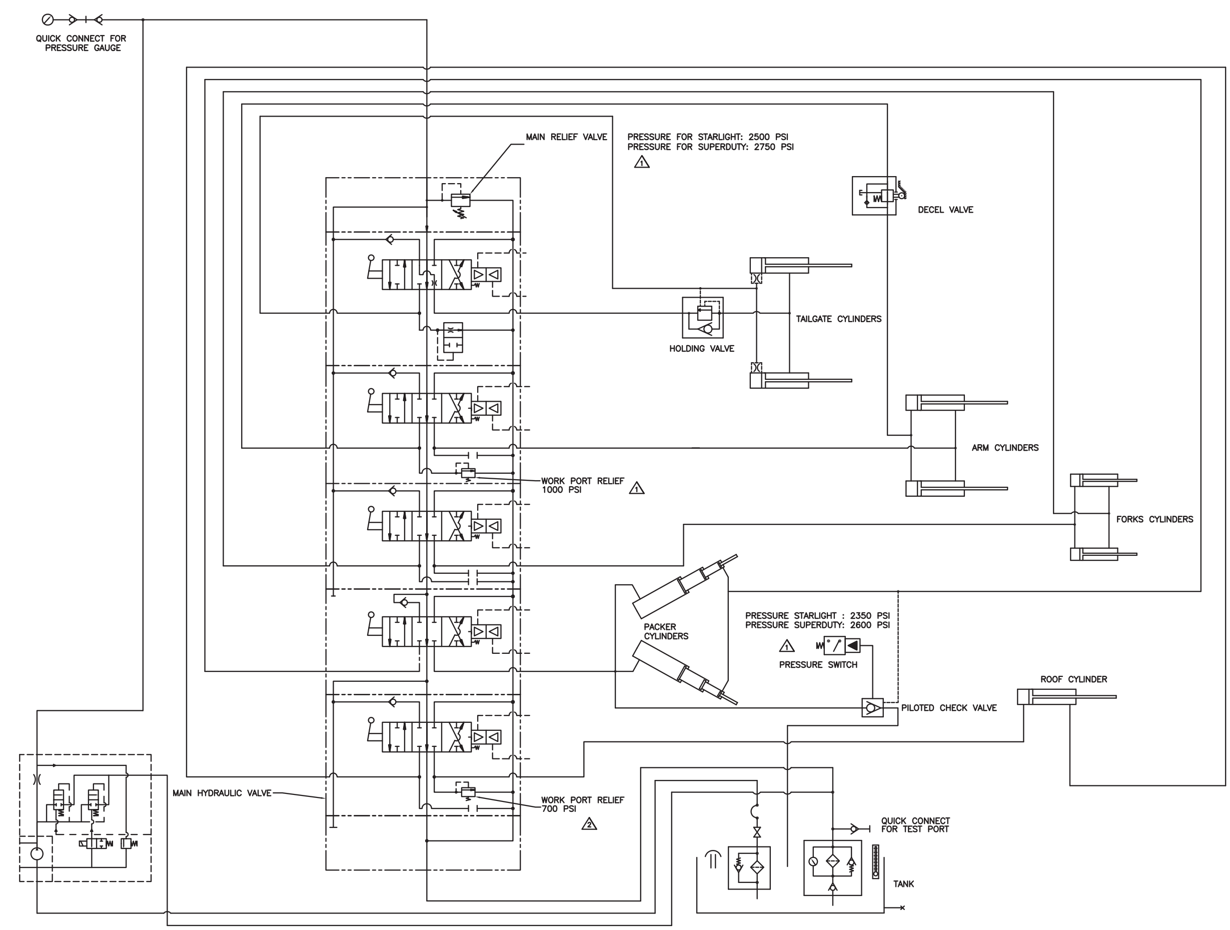
NOTICE

INSPECT ALL HYDRAULIC HOSES AND TUBING DAILY FOR ABRASION, CUTS, CRACKS AND DAMAGE. REPLACE ANY HYDRAULIC HOSE WHICH SHOWS SIGNS OF DAMAGE.

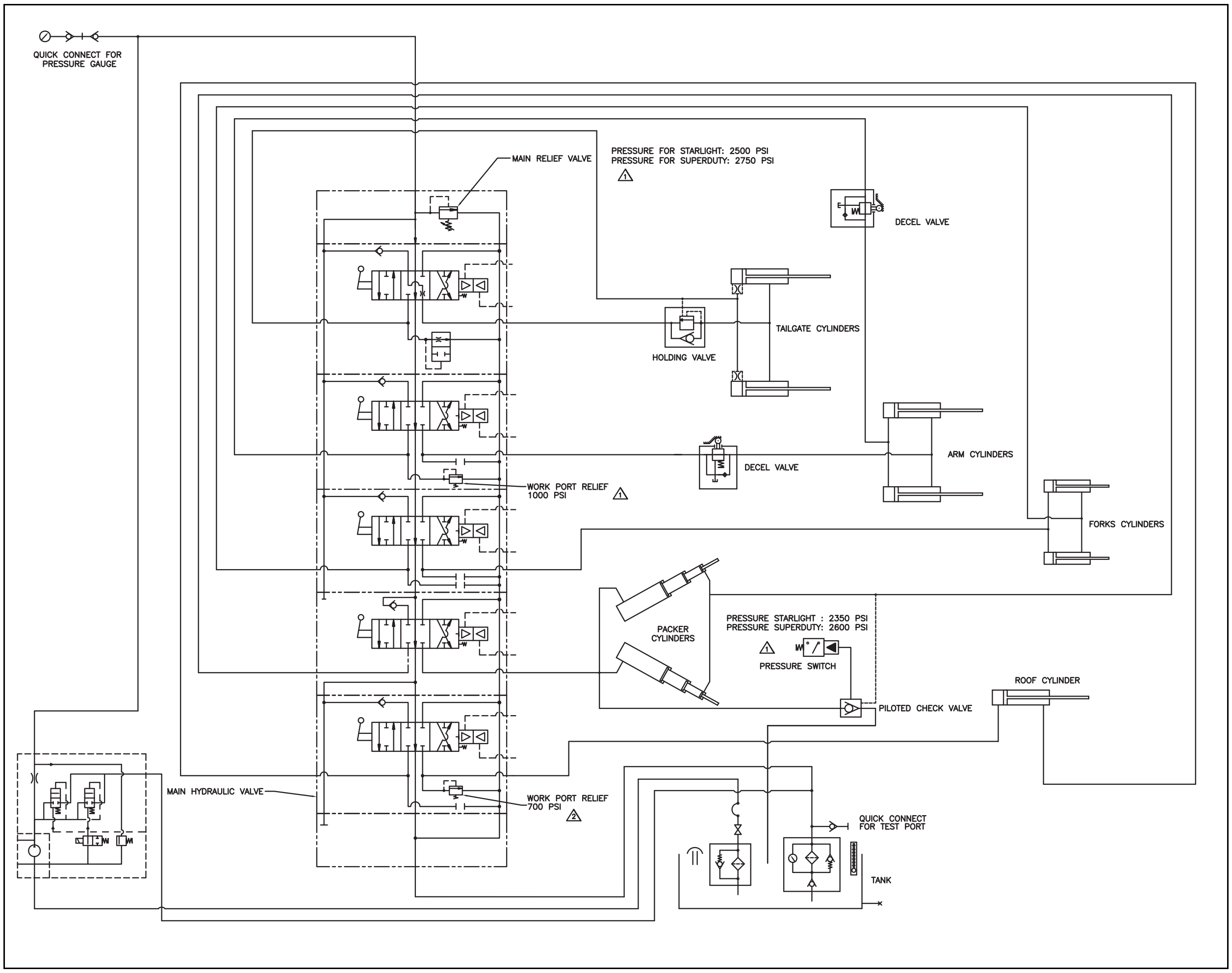
HYDRAULIC SYSTEM SCHEMATICS

Each WITTKE truck is provided with its specific hydraulic schematic. For more details on the hydraulic system of your unit, refer to this schematic.

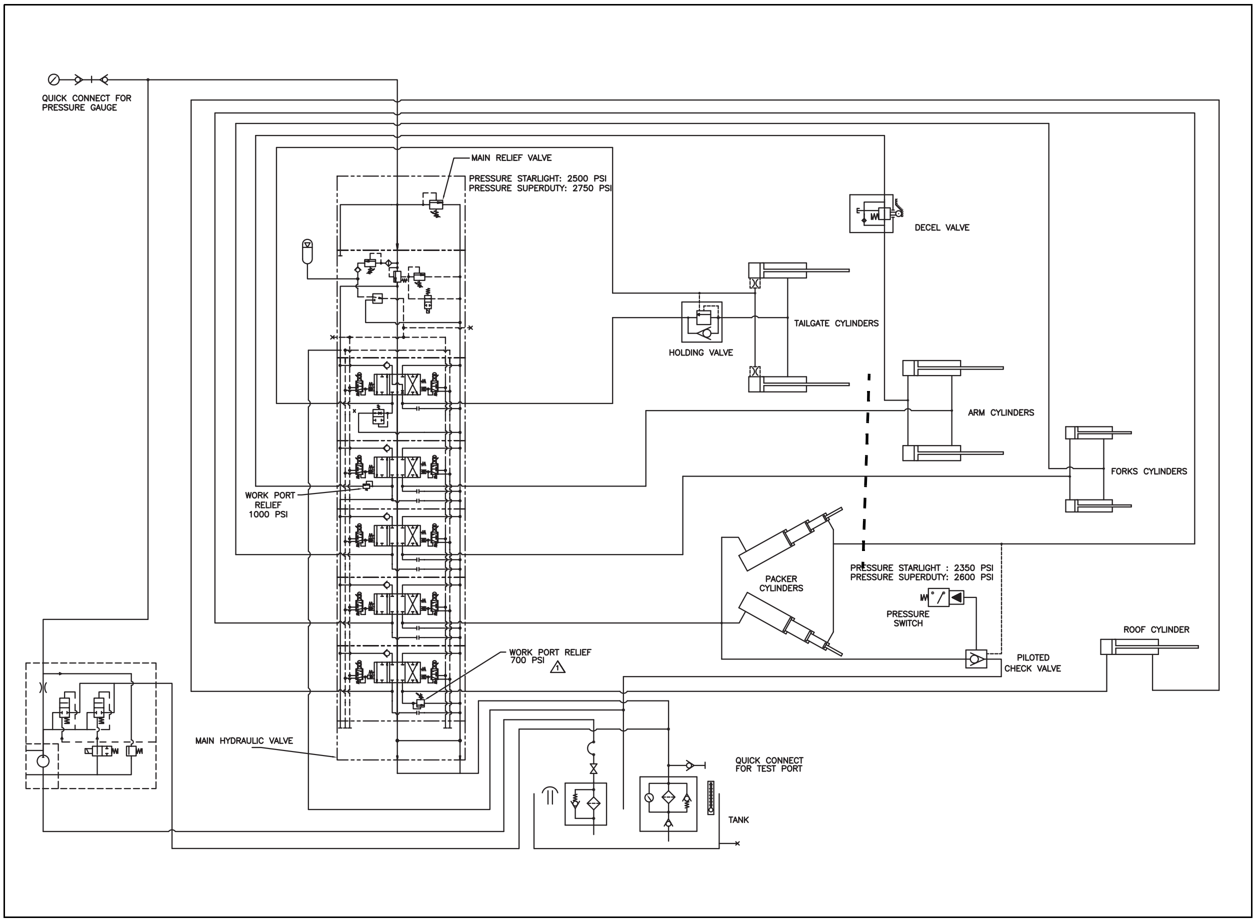
Valve with Pneumatic Control (standard)



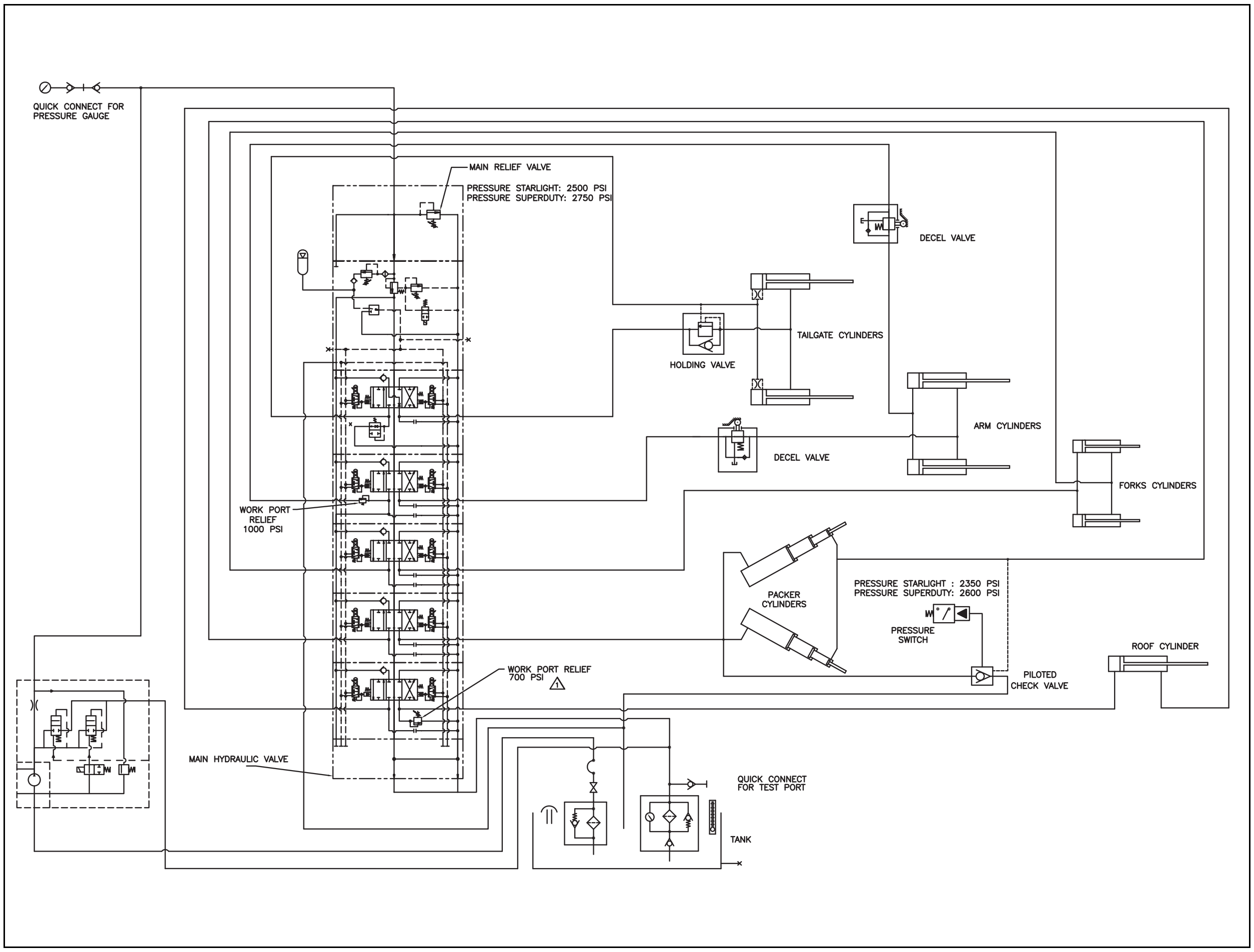
Valve with Pneumatic Control – 2 Deceleration Valves on Forks



Hydraulic Diagram Auto-dump with One Deceleration Valve



Hydraulic Diagram Auto-dump with Two Deceleration Valves



Packer Maintenance

The Wittke packing system has a heavy duty guiding system using special hardened steel wear plates. Because of the frequent use of the packer, we recommend to perform daily inspections (operator) and weekly inspections (maintenance personnel)

Greasing all moving parts on a daily basis is very important. The proper adjustment of the proximity switches is also very important (refer to “Packer Fully Retracted Proximity Switch” on page 40 and to “Packer Fully Extended Proximity Switch” on page 41).

Packer Wear Plates Replacement

If the packer has a vertical movement greater than 3/16 inch or a side movement greater than 1/8 inch, verify wear plates and body guides.

Different types of steel are used:

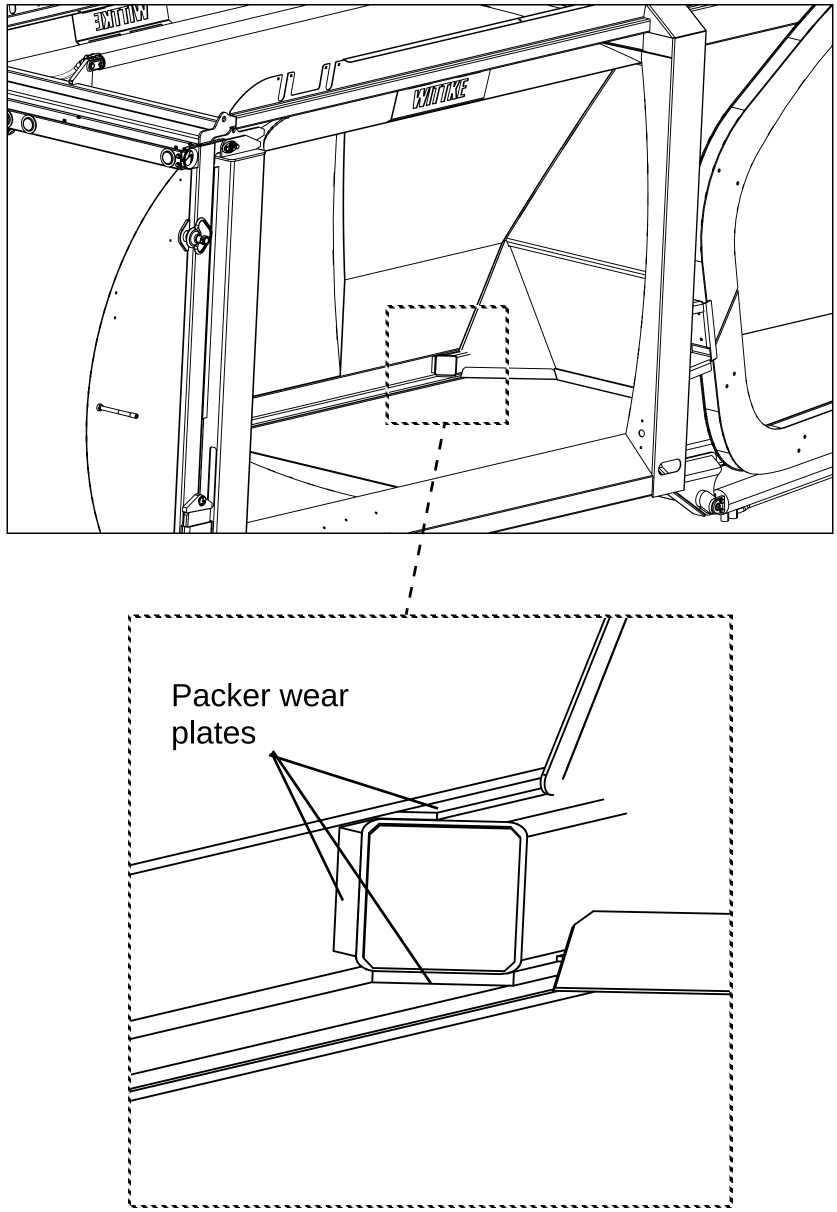
- Hardox 500 (bottom of the body)
- Hardox 450 (packer)
- Chromium overlay wear strips (on packer shoes and channels) – Optional
- 3/8” Chromium overlay wear strips on hopper bottom rails, 3/8” Hardox 500 on hopper side rails and 3/8” Hardox 450 on packer sides – Optional package

⚠ DANGER

APPLY THE LOCKOUT/TAGOUT PROCEDURE AT ALL TIMES. FAILURE TO DO SO MAY RESULT IN SEVERE INJURY OR DEATH.

To replace packer wear plates:

1. Remove the packer (refer to “Packer Removal Procedure” on page 78).
2. Remove the wear plates from the packer by cutting the welds.
3. Verify corresponding wear plates under guiding tracks.
4. Install new wear plates on packer.
5. Reinstall packer in the unit.


Packer wear plates

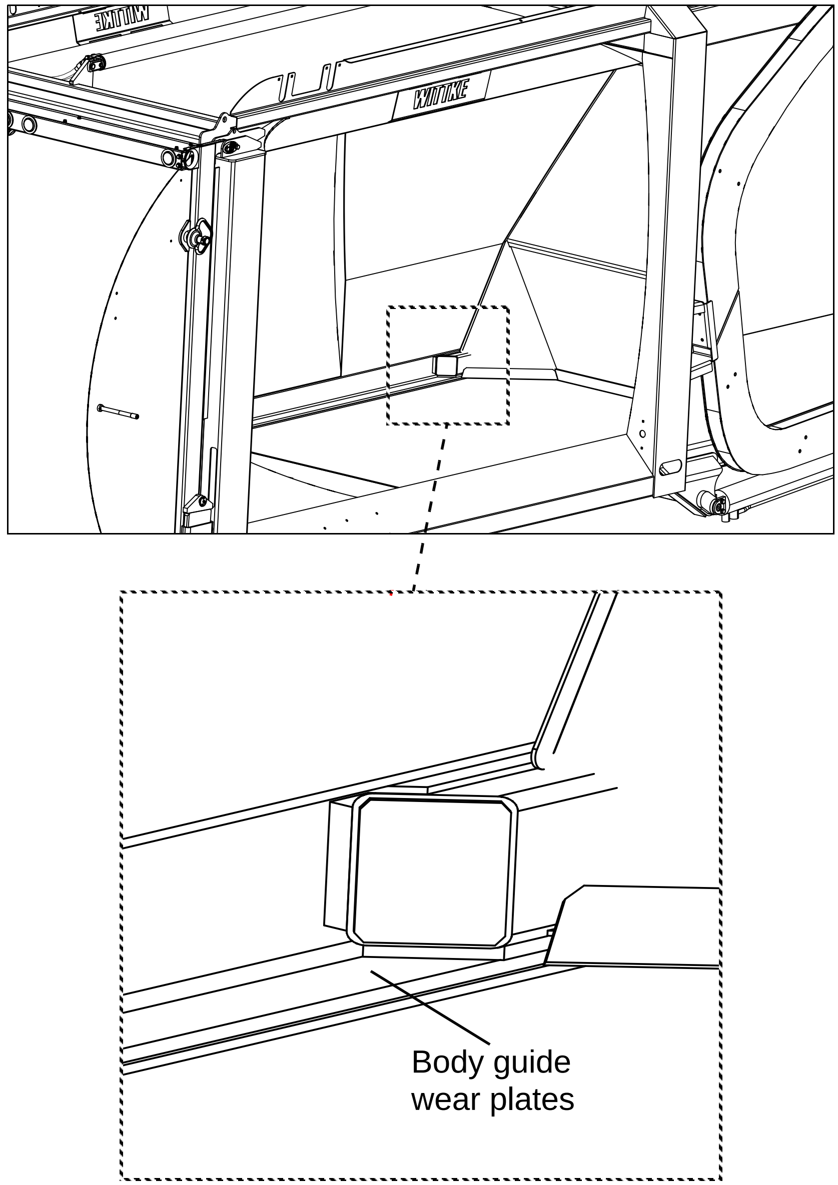
Body Guide Wear Plates Replacement

⚠ WARNING

Apply the lockout/tagout procedure at all times. Failure to do so may result in severe injury or death.

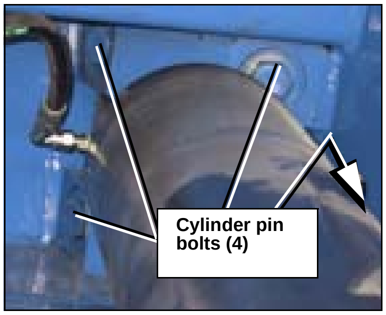
To replace body guide wear plates:

1. Remove the packer (refer to “Packer Removal Procedure” on page 78).
2. Retract the packer cylinders and move them out of the way.
3. Remove body wear plates by grinding or cutting the stitch welds attaching plates to guide.
4. Clean surfaces and install new plates by tacking them in place.
5. Once in proper position, stitch weld plates in place.
6. Reinstall the packer.

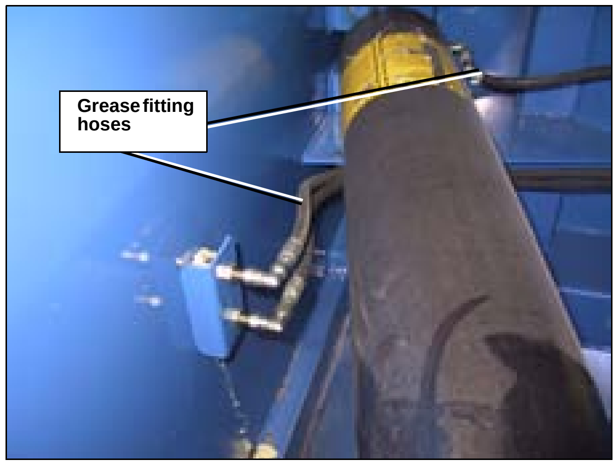

Body guide
wear plates

Packer Removal Procedure

To remove the packer:



1. Start the engine and hydraulic system. Bring the packer to the rear end of the body (full eject) to easily access the pins.
2. Stop the engine and turn off the hydraulic pump.
3. Enter the hopper and remove the grease fitting hoses (on each cylinder).



4. Secure both cylinders to keep them from falling on the body floor.

⚠ WARNING

Cylinders must be properly secured before removing their pins. Failure to do so may result in damage, severe injury or even death.

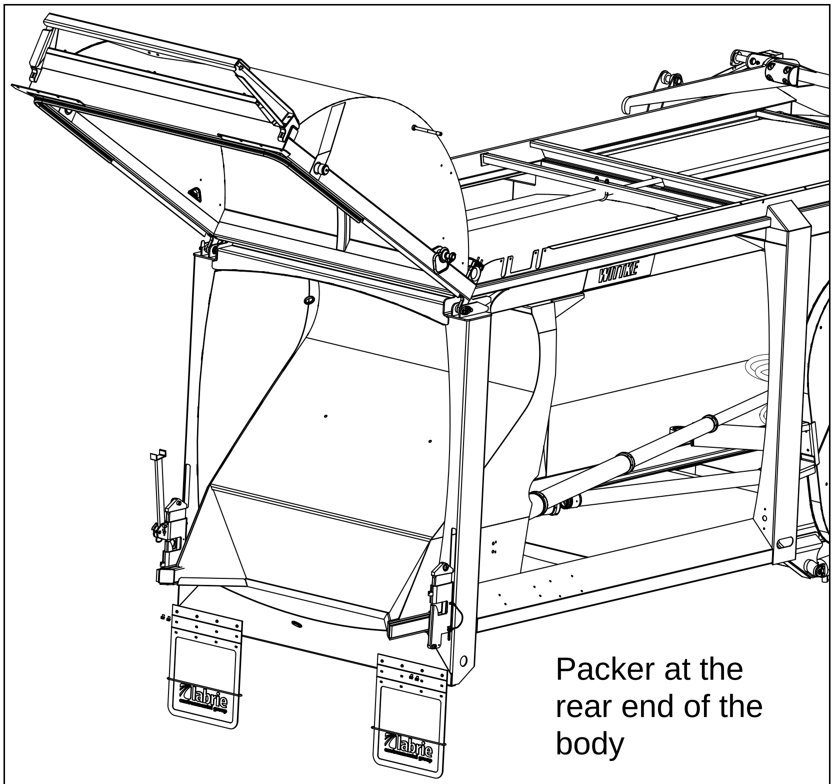
5. Remove the packer end cylinder pin bolts (4 on each pin).
6. Get out of the hopper and close the side access door.
7. Start the engine and turn on the hydraulic pump.
8. Perform the lockout tagout procedure.

9. Using an appropriate and safe lifting device, pull the packer out of the body.

WARNING

MAKE SURE THAT THE PACKER IS SECURED BEFORE PULLING IT OUT OF THE BODY AND ALWAYS USE APPROPRIATE LIFTING DEVICE. FAILURE TO DO SO MAY RESULT IN DAMAGE, SEVERE INJURY OR EVEN DEATH.

***Note:** The packer weighs approximately 1900 lbs (without cylinders).*



Packer at the rear end of the body

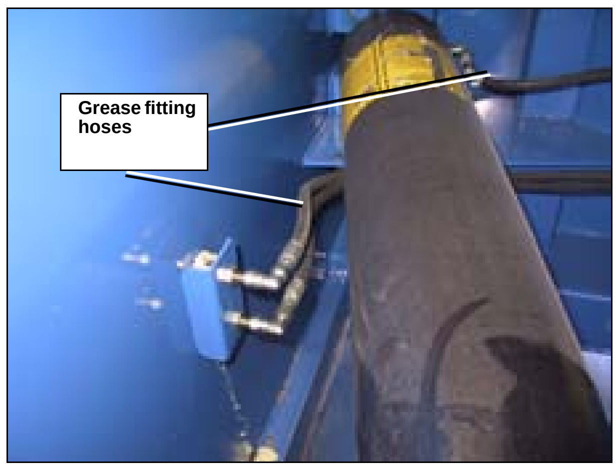
Packer Cylinder Replacement

⚠ WARNING

USE AN APPROPRIATE LIFTING DEVICE TO REMOVE CYLINDERS.

To replace packer cylinders:

1. Extend the packer until it reaches the end of the packing stroke (with tailgate closed).
2. Stop the engine and turn off the hydraulic pump.
3. Enter the hopper and remove the grease fitting hoses (on each cylinder).



4. Secure both cylinders to avoid them falling on the body floor.

⚠ WARNING

MAKE SURE THAT THE PACKER IS SECURED BEFORE PULLING IT OUT OF THE BODY AND ALWAYS USE APPROPRIATE LIFTING DEVICE. FAILURE TO DO SO MAY RESULT IN DAMAGE, SEVERE INJURY OR EVEN DEATH.

5. Remove packer end cylinder pins.
6. Get out of the hopper and close the side access door.
7. Start the engine and turn on the hydraulic pump.
8. Retract packer cylinders.
9. Remove hoses and front header end pins from both cylinders. Install plugs to avoid cylinder extension and oil spill.

10. Take the cylinders out of the hopper (by the roof).

11. To reinstall cylinders, perform the reverse procedure.

Note: A cylinder weighs approximately 450 lbs (without oil).

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